CCD-TRV107E/TRV108E/ TRV208E/TRV408E

RMT-708

SERVICE MANUAL

Self Diagnosis Supported model

Ver 1.1 2002. 07

Handycam Vision™

video Hi8

InfoLITHIUM™ M SERIES

Photo : CCD-TRV408E

AEP Model
UK Model
East European Model
North European Model
Russian Model
CCD-TRV108E/TRV208E/TRV408E
E Model
Australian Model
Hong Kong Model
Tourist Model
CCD-TRV107E/TRV408E
Chinese Model
CCD-TRV107E

M2100 MECHANISM

For MECHANISM ADJUSTMENT, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL IX M2000 MECHANISM " (9-929-861-11).

SPECIFICATIONS

Video camera recorder

System

Video recording system
2 rotary heads
Helical scanning
FM system
Audio recording system
Rotary heads, FM system
Video signal
PAL colour, CCIR standards
Usable cassette
8mm video format cassette
Hi8 or standard 8
Recording/playback time (using 90 min. Standard 8/Hi8 video cassette)
SP mode: 1.5 hours
LP mode: 3 hours
Fastforward/rewind time (using 90 min. Standard 8/Hi8 video cassette)
Approx. 5 min.
Viewfinder
Electric Viewfinder (monochrome)
Image device
CCD-TRV408E:
4.5 mm (1/4 type) CCD
(Charge Coupled Device)
Approx. 380 000 pixels
(Effective: Approx. 230 000 pixels)
CCD-TRV107E/TRV108E/
TRV208E:
3.0 mm (1/6 type) CCD
(Charge Coupled Device)
Approx. 320 000 pixels
(Effective: Approx. 290 000 pixels)

Lens
Combined power zoom lens
Filter diameter 37 mm (1 7/16 in.)
CCD-TRV107E:
20× (Optical), 450× (Digital)
CCD-TRV108E:
20× (Optical), 460× (Digital)
CCD-TRV208E/TRV408E:
20× (Optical), 560× (Digital)
Focal length
3.6 - 72 mm (5/32 - 2 7/8 in.)
When converted to a 35 mm still camera
41 - 820 mm (1 5/8 - 32 3/8 in.)
Colour temperature
Auto
Minimum illumination
CCD-TRV107E/TRV108E/TRV208E:
1 lx (lux) (F 1.4)
CCD-TRV408E:
0.3 lx (lux) (F 1.4)
0 lx (lux) (in the NightShot mode)*
* Objects unable to be seen due to the dark can be shot with infrared lighting.

Input/output connectors

S video output
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced
Chrominance signal: 0.3 Vp-p, 75 Ω (ohms), unbalanced

Audio/Video output
AV MINIJACK, 1 Vp-p, 75 Ω (ohms), unbalanced, sync negative 327 mV, (at output impedance more than 47 kΩ (kilohms))
Output impedance with less than 2.2 kΩ (kilohms)/Monaural minijack
(ø 3.5 mm)
RFU DC OUT
Mini-mini jack (ø 2.5 mm), DC 5V

LCD screen

Picture
6.2 cm (2.5 type)
50.3 × 37.4 mm (2 × 1 1/2 in.)
Total dot number
61 600 (280 × 220)

General

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)
Average power consumption (when using the battery pack)
During camera recording using
LCD
2.6 W
Viewfinder
1.9 W

Operating temperature
0 °C to 40 °C (32 °F to 104 °F)
Recommended charging temperature
10 °C to 30 °C (50 °F to 86 °F)
Storage temperature
–20 °C to +60 °C
(–4 °F to +140 °F)
Dimensions (Approx.)
90 × 102 × 197 mm
(3 5/8 × 4 1/8 × 7 7/8 in.)
(w/h/d)
Mass (approx.)
850 g (1 lb 14 oz)
main unit only
1.0 kg (2 lb 3 oz)
including the battery pack
NP-FM30, Hi8 cassette, lens cap and shoulder strap
Supplied accessories
See page 3.

— Continued on next page —

Hi8 VIDEO CAMERA RECORDER

SONY®

AC power adaptor

Power requirements
100 - 240 V AC, 50/60 Hz
Power consumption
23 W
Output voltage
DC OUT: 8.4 V, 1.5 A in the operating mode
Operating temperature
0 °C to 40 °C (32 °F to 104 °F)
Storage temperature
–20 °C to +60 °C (–4 °F to +140 °F)
Dimensions (approx.)
125 × 39 × 62 mm (5 × 1 9/16 × 2 1/2 in.) (w/h/d) excluding projecting parts
Mass (approx.)
280 g (9.8 oz) excluding mains lead

Battery pack

Maximum output voltage
DC 8.4 V
Output voltage
DC 7.2 V
Capacity
5.0 Wh (700 mAh)
Operating temperature
0 °C to 40 °C (32 °F to 104 °F)
Dimensions (approx.)
38.2 × 20.5 × 55.6 mm (1 9/16 × 13/16 × 2 1/4 in.) (w/h/d)
Mass (approx.)
65 g (2.3 oz)
Type
Lithium ion

Design and specifications are subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

CAUTION :
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270˚C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

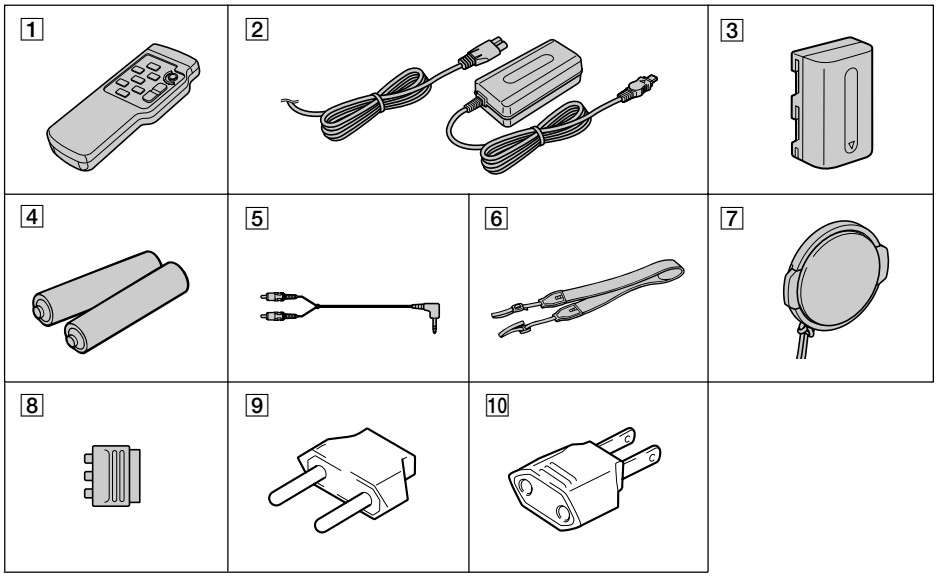
: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350°C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

• SUPPLIED ACCESSORIES

Make sure that the following accessories are supplied with your camcorder.



1 **Wireless Remote Commander** (1)
CCD-TRV107E / TRV208E / TRV408E only

2 **AC-L10A/L10B/L10C AC power adaptor** (1), **Mains lead** (1)

3 **NP-FM30 battery pack** (1)

4 **R6 (Size AA) battery for Remote Commander** (2)
CCD-TRV107E / TRV208E / TRV408E only

5 **A/V connecting cable** (1)

6 **Shoulder strap** (1)

7 **Lens cap** (1)

8 **21-pin adaptor** (1)
CCD-TRV108E / TRV208E /
TRV408E : AEP, UK only

9 **2-pin conversion adaptor** (1)
CCD-TRV107E : JE / TRV408E : JE only

10 **2-pin conversion adaptor** (1)
CCD-TRV107E : E, HK /
TRV408E : E / HK only

Table for difference of function

Model		CCD-TRV107E	CCD-TRV108E	CCD-TRV208E	CCD-TRV408E
Destination		E, AUS, HK, CH, JE	AEP, UK, EE, NE, RU		AEP, UK, E, AUS, HK, JE, EE, NE, RU
Remote Commander		RMT-708	×	RMT-708	
Lens	Optical	20×			
	Digital	450×	460×	560×	
CCD imager size		1/6 inch			1/4 inch
Steady shot		×			○

• Abbreviation
AUS : Australian model
HK : Hong Kong model
CH : Chinese model
JE : Tourist model
EE : East European model
NE : North European model
RU : Russian model

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* Color reproduction frame is shown on page 215.

SERVICE NOTE

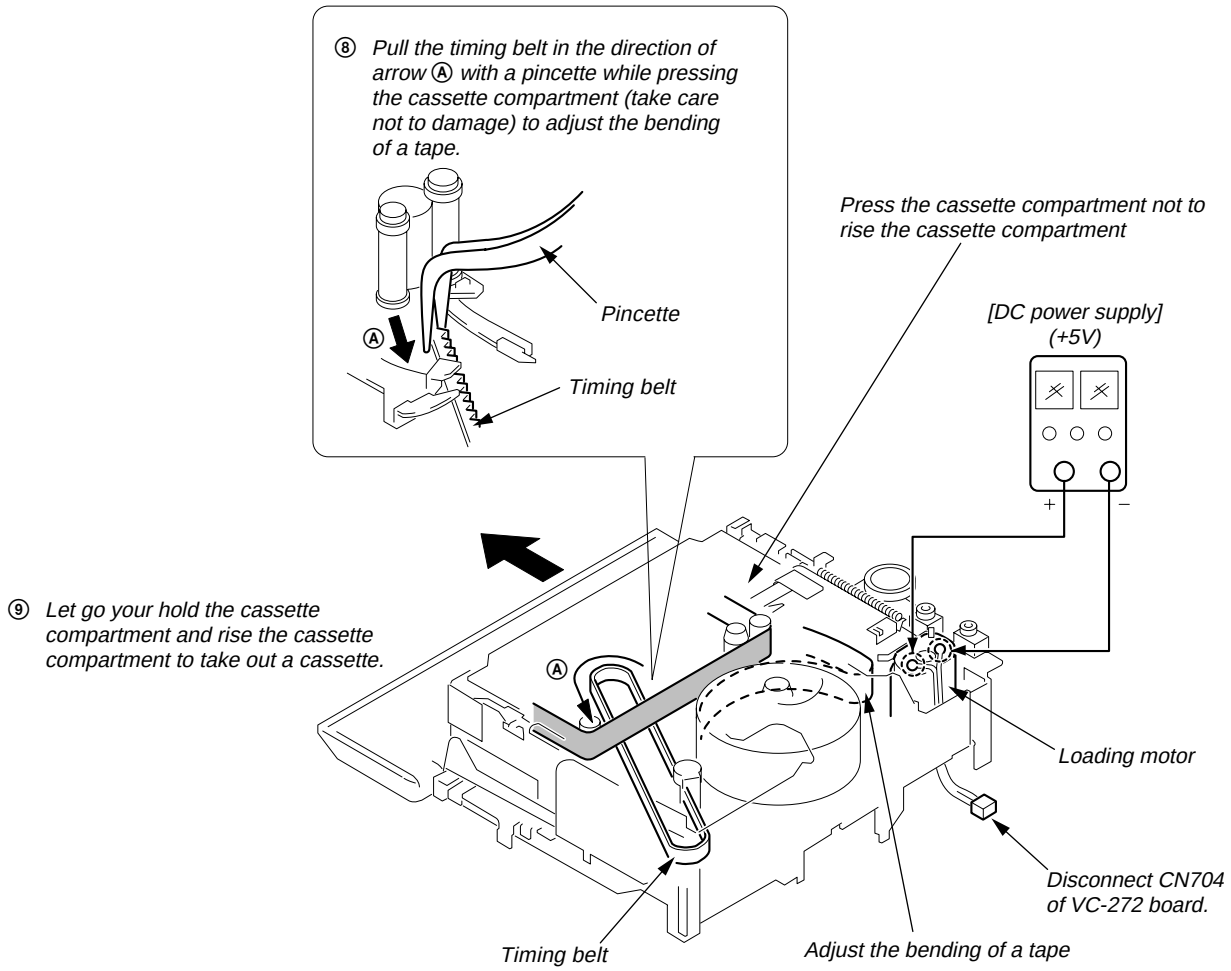
1. POWER SUPPLY DURING REPAIRS

In this unit, about 10 seconds after power is supplied (8.4V) to the battery terminal, the power is shut off so that the unit cannot operate. The following method is available to prevent this.

Method:
Use the DC IN terminal. (Use the AC power adaptor.)

2. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

① Refer to 2-5. to remove the front panel assembly.
② Refer to 2-7. to remove the cabinet (R) assembly.
③ Open the control switch block (FK-2000).
④ Refer to 2-6. to remove the cassette lid assembly.
⑤ Refer to 2-6. to remove the cabinet (L) assembly.
⑥ Disconnect CN704 (2P) of VC-272 board.
⑦ Add +5V from the DC POWER SUPPLY and unload with a pressing the cassette compartment.


⑧ Pull the timing belt in the direction of arrow Ⓐ with a pincette while pressing the cassette compartment (take care not to damage) to adjust the bending of a tape.
Pincette
Timing belt
Press the cassette compartment not to rise the cassette compartment
[DC power supply] (+5V)
+
–
⑨ Let go your hold the cassette compartment and rise the cassette compartment to take out a cassette.
Ⓐ
Loading motor
Disconnect CN704 of VC-272 board.
Timing belt
Adjust the bending of a tape

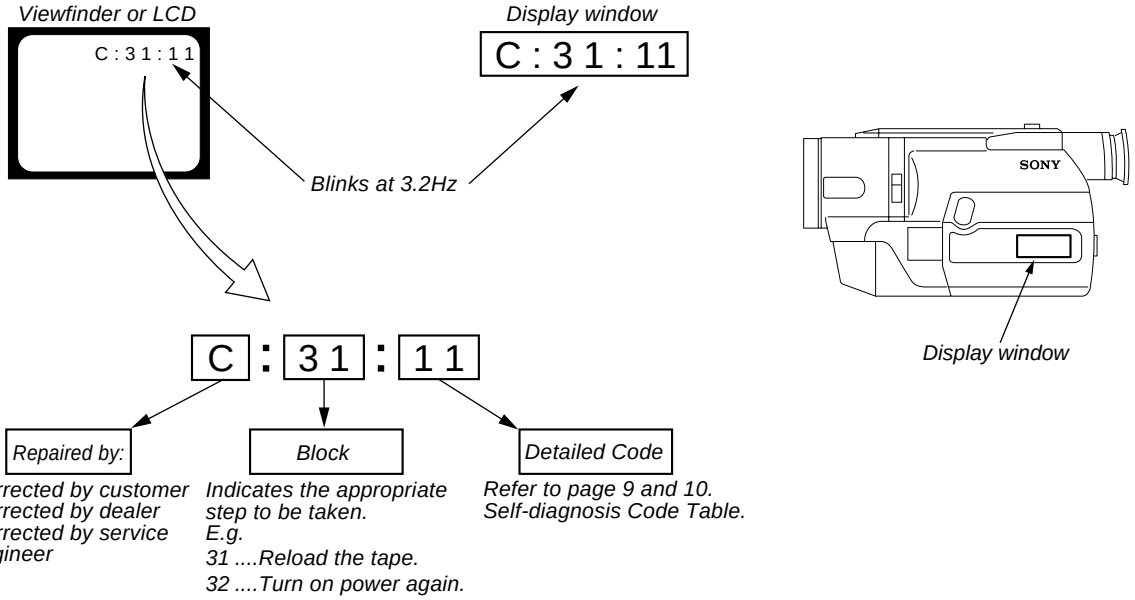
SELF-DIAGNOSIS FUNCTION

1. Self-diagnosis Function

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder or LCD or Display window what to do. This function consists of two display; self-diagnosis display and service mode display.
Details of the self-diagnosis functions are provided in the Instruction manual.

2. Self-diagnosis Display

When problems occur while the unit is operating, the counter of the viewfinder or LCD or Display window shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the "repaired by:", "block" in which the problem occurred, and "detailed code" of the problem.

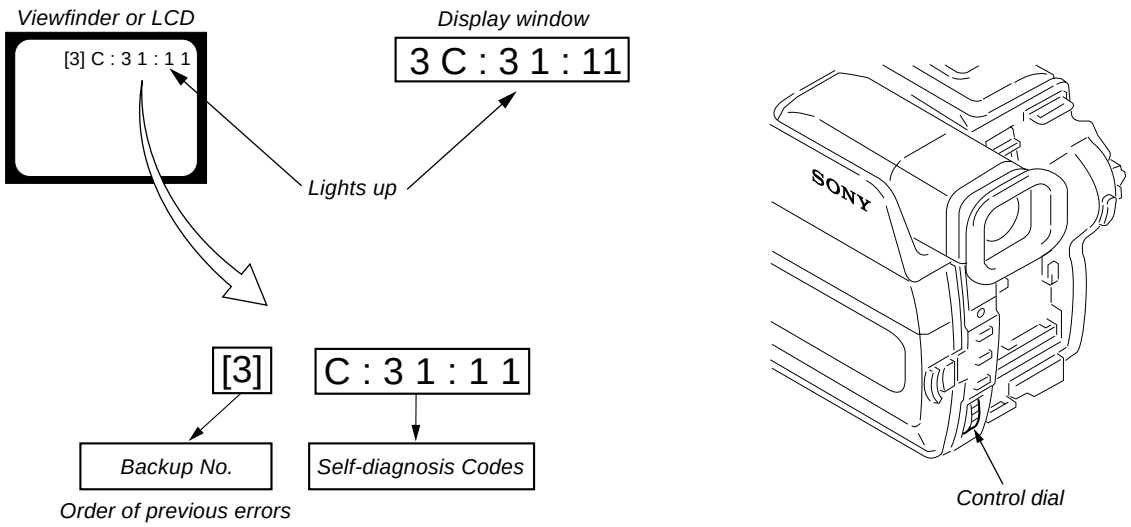

Viewfinder or LCD
C : 3 1 : 1 1
Display window
C : 3 1 : 11
Blinks at 3.2Hz
SONY
Display window
C : 3 1 : 1 1
Repaired by:
Block
Detailed Code
C : Corrected by customer
H : Corrected by dealer
E : Corrected by service engineer
Indicates the appropriate step to be taken.
E.g.
31 ....Reload the tape.
32 ....Turn on power again.
Refer to page 9 and 10. Self-diagnosis Code Table.

3. Service Mode Display

The service mode display shows up to six self-diagnosis codes shown in the past.

3-1. Display Method

While pressing the "STOP" key, set the switch from OFF to "PLAYER", and continue pressing the "STOP" key for 5 seconds continuously. The service mode will be displayed, and the counter will show the backup No. and the 5-character self-diagnosis codes.



3-2. Switching of Backup No.

By rotating the control dial, past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

[1] : Occurred first time [4] : Occurred fourth time
[2] : Occurred second time [5] : Occurred fifth time
[3] : Occurred third time [6] : Occurred the last time

3-3. End of Display

Turning OFF the power supply will end the service mode display.

Note: The "self-diagnosis display" data will be backed up by the built-in rechargeable lithium battery (CF-2000 block BT001). When the cabinet (R) assembly is disconnected, the "self-diagnosis display" data will be lost by initialization.

4. Self-diagnosis Code Table

Self-diagnosis Code					Symptom/State	Correction
Repaired by:	Block Function		Detailed Code			
C	0	4	0	0	Non-standard battery is used.	Use the InfoLITHIUM battery.
C	2	1	0	0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2	2	0	0	Video head is dirty.	Clean with the optional cleaning cassette.
C	3	1	1	0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3	1	1	1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3	1	2	0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3	1	2	1	S reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3	1	2	2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	2	3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	3	0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3	1	3	1	FG fault during normal capstan operations.	Load the tape again, and perform operations from the beginning.
C	3	1	4	0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3	1	4	1	PG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3	1	4	2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3	1	4	3	PG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3	1	4	4	Phase fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3	2	1	0	LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	1	1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	1	S reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2	3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	3	0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	3	1	FG fault during normal capstan operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	0	FG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	1	PG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	2	FG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	3	PG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4	4	Phase fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.

Self-diagnosis Code					Symptom/State	Correction
Repaired by:	Block Function		Detailed Code			
E	6	1	0	0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus reset sensor (Pin ⑫ of CN301 of VC-272 board) when focusing is performed when the control dial is rotated in the focus manual mode and the focus motor drive circuit (IC301 of VC-272 board) when the focusing is not performed.
E	6	1	1	0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom reset sensor (Pin ⑭ of CN301 of VC-272 board) when zooming is performed when the zoom switch is operated and the zoom motor drive circuit (IC301 of VC-272 board) when zooming is not performed.
E	6	2	0	0	Handshake correction function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE750 of SI-033 board) peripheral circuits. *1
E	6	2	0	1	Handshake correction function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE751 of SI-033 board) peripheral circuits. *1

*1: STEADY SHOT model (CCD-TRV408E)

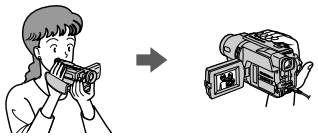
SECTION 1
GENERAL

This section is extracted from instruction manual.

English

Main Features

Taking moving images, and playing them back
- Recording a picture (p. 26)
- Playing back a tape (p. 38)



Others

Functions to adjust exposure in the recording mode
- BACK LIGHT (p. 33)
- NightShot (p. 34)
- PROGRAM AE (p. 51)
- Built-in light (p. 62)
- Manual exposure (p. 54)

Functions to give images more impact
- Digital zoom (p. 30)
  The default settings is set to **OFF**. (To zoom greater than 20×, select the digital zoom power in **D ZOOM** in the menu settings.)
- FADER (p. 46)
- Picture effect (p. 49)
- TITLE (p. 57)

Function to give a natural appearance to your recordings
- Manual focus (p. 55)

Functions to use in editing in the recording mode
- Wide mode (p. 44)
- Date and time (p. 22)
- ORC [MENU] (p. 81)

Function to use after recording
- Easy Dubbing (p. 68)

Function to make transition smooth
- END SEARCH (p. 37)

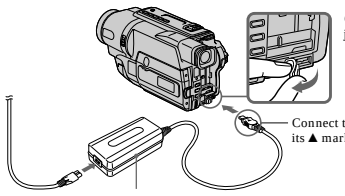
English

Quick Start Guide

This chapter introduces you to the basic features of your camcorder. See the page in parentheses "( )" for more information.

1 Connecting the mains lead (p. 20)

Use the battery pack when using your camcorder outdoors (p. 15).

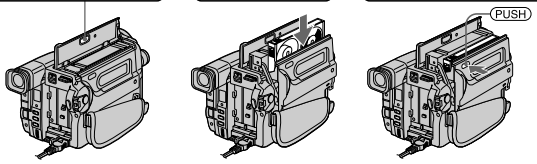


2 Inserting a cassette (p. 24)

❶ Open the lid of the cassette compartment, and press ⏏ EJECT. The cassette compartment opens automatically.

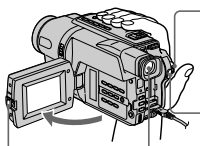
❷ Insert a cassette into the cassette compartment with its window facing out and the write-protect tab on the cassette up.

❸ Close the cassette compartment by pressing the (PUSH) mark on the cassette compartment. The cassette compartment automatically goes down. Close the lid of the cassette compartment.



3 Recording a picture (p. 26)

❶ Remove the lens cap.



❷ Set the POWER switch to CAMERA while pressing the small green button.

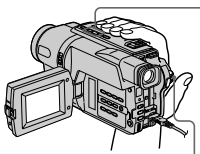
❸ Open the LCD panel while pressing OPEN. The picture appears on the LCD screen.

❹ Press START/STOP. Your camcorder starts recording. To stop recording, press START/STOP again.

Viewfinder
When the LCD panel is closed, use the viewfinder placing your eye against its eyecup. The picture in the viewfinder is black and white. Adjust the viewfinder lens to your eyesight (p. 31).

When you purchase your camcorder, the clock setting is set to off. If you want to record the date and time for a picture, set the clock setting before recording (p. 22).

4 Monitoring the playback picture on the LCD screen (p. 38)

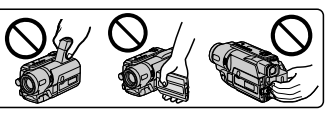


❷ Press ◀◀ to rewind the tape.

❸ Press ► to start playback.

❶ Set the POWER switch to PLAYER while pressing the small green button.

NOTE
Do not pick up your camcorder by the viewfinder, the LCD panel or the battery pack.



— Getting started —

Using this manual

The instructions in this manual are for the four models listed in the table below. Before you start reading this manual and operating your camcorder, check the model number by looking at the bottom of your camcorder. The CCD-TRV408E is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, "CCD-TRV408E only."
As you read through this manual, buttons and settings on your camcorder are shown in capital letters.
e.g. Set the POWER switch to CAMERA.
When you carry out an operation, you can hear a beep sound to indicate that the operation is being carried out.

— Подготовка к эксплуатации —

Использование данного руководства

Инструкция в данном руководстве относится к четырем моделям, перечисленным в таблице. Прежде, чем приступить к ознакомлению с данным руководством и эксплуатации Вашей видеокамеры, проверьте номер модели с нижней стороны видеокамеры. Для иллюстративных целей используется модель CCD-TRV408E. В противном случае название модели указывается на рисунках. Любые отличия в работе четко указываются в тексте, например, "только модель CCD-TRV408E".
При чтении данного руководства учитывайте, что кнопки и установки на видеокамере показаны заглавными буквами.
Прим. Установите выключатель POWER в положение CAMERA.
При выполнении операции на видеокамере Вы сможете услышать зуммерный сигнал, подтверждающий выполнение операции.

Types of differences/Типы различий

CCD-	TRV107E	TRV108E	TRV208E	TRV408E
Digital Zoom / Цифровая трансфокация	450×	460×	560×	560×
Remote sensor / Датчик дистанционного управления	●	—	●	●
SteadyShot / Функция устойчивой съемки	—	—	—	●

● Provided / Имеется
— Not provided / Отсутствует

Note on TV colour systems

TV colour systems differ from country to country. To view your recordings on a TV, you need a PAL system-based TV.

Примечание по системам цветного телевидения

Системы цветного телевидения отличаются в зависимости от страны. Для просмотра Ваших записей на экране телевизора Вам необходимо использовать телевизор, основанный на системе PAL.

Using this manual

Precautions on camcorder care

Lens and LCD screen/finder (on mounted models only)

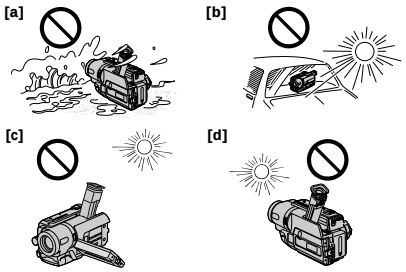
- **The LCD screen and the finder are manufactured using extremely high-precision technology so over 99.99% of the pixels are operational for effective use. However, there may be some tiny black points and/or bright points (white, red, blue or green in colour) that constantly appear on the LCD screen and the finder. These points are normal in the manufacturing process and do not affect the recording in any way.**
- Do not let your camcorder get wet. Keep your camcorder away from rain and sea water. Letting your camcorder get wet may cause your camcorder to malfunction. Sometimes this malfunction cannot be repaired **[a]**.
- Never leave your camcorder exposed to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight **[b]**.
- Be careful when placing the camera near a window or outdoors. Exposing the LCD screen, the finder or the lens to direct sunlight for long periods may cause malfunctions **[c]**.
- Do not directly shoot the sun. Doing so might cause your camcorder to malfunction. Take pictures of the sun in low light conditions such as dusk **[d]**.

Использование данного руководства

Меры предосторожности при уходе за видеокамерой

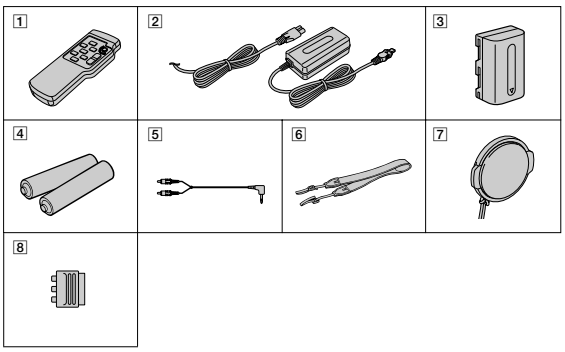
Объектив и экран ЖКД/видоискатель (только на монтируемых моделях)

- **Экран ЖКД и видоискатель изготовлены с помощью высокопрецизионной технологии, поэтому свыше 99,99% элементов изображений предназначено для эффективного использования. Однако на экране ЖКД и в видоискателе могут появляться маленькие черные и/или яркие цветные точки (белые, красные, синие или зеленые). Появление этих точек вполне нормально для процесса съемки и никоим образом не влияет на записываемое изображение.**
- Не допускайте, чтобы видеокамера становилась влажной. Предохраняйте видеокамеру от дождя и морской воды. Если Вы намочите видеокамеру, то это может привести к неисправности аппарата, которая не всегда может быть устранена **[a]**.
- Никогда не оставляйте видеокамеру в месте с температурой выше 60°C, как, например, в автомобиле, оставленном на солнце или под прямым солнечным светом **[b]**.
- Будьте осторожны при размещении видеокамеры возле окна или вне помещения. Воздействие прямого солнечного света на экран ЖКД, видоискатель или объектив в течение длительного периода времени может привести к неисправностям **[c]**.
- Не направляйте камеру прямо на солнце. Это может привести к неисправности Вашей видеокамеры. Проводите съемки солнца в условиях низкой освещенности, таких, как сумерки **[d]**.



Checking supplied accessories

Make sure that the following accessories are supplied with your camcorder.



1 **Wireless Remote Commander** (1) (p. 124) (CCD-TRV107E / TRV208E / TRV408E only)
2 **AC-L10A/L10B/L10C AC power adaptor** (1), **Mains lead** (1) (p. 16)
3 **NP-FM30 battery pack** (1) (p. 15, 16)
4 **R6 (Size AA) battery for Remote Commander** (2) (p. 125) (CCD-TRV107E / TRV208E / TRV408E only)
5 **A/V connecting cable** (1) (p. 42)
6 **Shoulder strap** (1) (p. 119)
7 **Lens cap** (1) (p. 26, 123)
8 **21-pin adaptor** (1) (p. 43) (European models only)

Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, storage media, etc.

Проверка прилагаемых принадлежностей

Убедитесь, что следующие принадлежности прилагаются к Вашей видеокамере.

1 **Беспроводный пульт дистанционного управления** (1) (стр. 124) (Только модель CCD-TRV107E/TRV208E/TRV408E)
2 **Сетевой адаптер переменного тока AC-L10A/L10B/L10C** (1)**, провод электропитания** (1) (стр. 16)
3 **Батарейный блок NP-FM30** (1) (стр. 15, 16)
4 **Батарейка R6 (размера AA) для пульта дистанционного управления** (2) (стр. 125) (Только модель CCD-TRV107E/TRV208E/TRV408E)
5 **Соединительный кабель аудио/видео** (1) (стр. 42)
6 **Плечевой ремень** (1) (стр. 119)
7 **Крышка объектива** (1) (стр. 26, 123)
8 **21-штырьковый адаптер** (1) (Только для европейских моделей)

Содержание записи не может быть компенсировано в случае, если запись или воспроизведение не выполнены из-за неисправности видеокамеры, носителя информации и т.п.

Step 1 Preparing the power supply

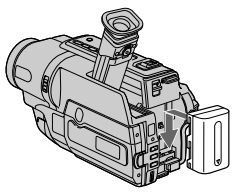
Installing the battery pack

Slide the battery pack down until it clicks.

Пункт 1 Подготовка источника питания

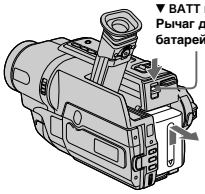
Установка батарейного блока

Передвиньте батарейный блок вниз, так чтобы он защелкнулся на месте.



To remove the battery pack
Slide the battery pack out in the direction of the arrow while pressing ▼ BATT down.

Для снятия батарейного блока
Передвиньте батарейный блок в направлении стрелки, нажав кнопку ▼ BATT вниз.



Step 1 Preparing the power supply

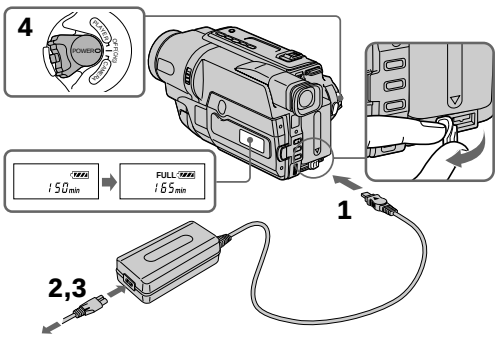
Пункт 1 Подготовка источника питания

Charging the battery pack

Use the battery pack after charging it for your camcorder.
Your camcorder operates only with the "InfoLITHIUM" battery pack (M series).
See page 105 for details of the "InfoLITHIUM" battery pack.
(1) Open the DC IN jack cover and connect the AC power adaptor supplied with your camcorder to the DC IN jack with the plug's ▲ mark facing up.
(2) Connect the mains lead to the AC power adaptor.
(3) Connect the mains lead to the wall socket.
(4) Set the POWER switch to OFF (CHG).
Charging begins. The remaining battery time is indicated in minutes on the display window.
When the remaining battery indicator changes to , **normal charge** is completed. To fully charge the battery **(full charge)**, leave the battery pack attached for about one hour after normal charge is completed until "FULL" appears in the display window. Fully charging the battery allows you to use the battery longer than usual.

Зарядка батарейного блока

Используйте батарейный блок для Вашей видеокамеры после его зарядки.
Ваша видеокамера работает только с батарейным блоком "InfoLITHIUM" (серии M).
Подробные сведения о батарейном блоке "InfoLITHIUM" приведены на стр. 105.
(1) Откройте крышку гнезда DC IN и подсоедините сетевой адаптер переменного тока, прилагаемый к Вашей видеокамере, к гнезду DC IN, так чтобы знак ▲ на штекере был обращен вверх.
(2) Подсоедините провод электропитания к сетевому адаптеру переменного тока.
(3) Подсоедините провод электропитания к стенной розетке.
(4) Установите переключатель POWER в положение OFF (CHG). Начнется зарядка. В окошке дисплея будет отображаться время оставшегося заряда в минутах.
Если индикатор оставшегося заряда изменится на , это значит, что **нормальная зарядка** завершена. Для полной зарядки батарейного блока **(полная зарядка)** оставьте батарейный блок подключенным приблизительно на один час после завершения нормальной зарядки до тех пор, пока в окошке дисплея не появится индикация "FULL". Полная зарядка батарейного блока позволяет Вам использовать батарейный блок дольше, чем обычно.



The number in the illustration of the display window may differ from that on your camcorder.

Число на рисунке окошка дисплея может отличаться от числа, которое отображается на видеокамере.

Step 1 Preparing the power supply

Пункт 1 Подготовка источника питания

After charging the battery pack

Disconnect the AC power adaptor from the DC IN jack on your camcorder.

Note
Prevent metallic objects from coming into contact with the metal parts of the DC plug of the AC power adaptor. This may cause a short-circuit, damaging the AC power adaptor.

Remaining battery time indicator
The remaining battery time you record with the viewfinder is displayed.
The remaining battery time indicator in the display window roughly indicates the recording time with the viewfinder.

Until your camcorder calculates the actual remaining battery time
"– – – – min" appears in the display window.

While charging the battery pack, no indicator appears or the indicator flashes in the display window in the following cases:
– The AC power adaptor is disconnected.
– The battery pack is not installed properly.
– Something is wrong with the battery pack.

We recommend charging the battery pack in an ambient temperature of between 10°C to 30°C (50°F to 86°F).

If the power goes off although the battery remaining indicator indicates that the battery pack has enough power to operate
Charge the battery pack fully again so that the indication on the battery remaining indicator is correct.

После зарядки батарейного блока

Отсоедините сетевой адаптер переменного тока от гнезда DC IN на Вашей видеокамере.

Примечание
Не допускайте контакта металлических предметов с металлическими частями штекера постоянного тока сетевого адаптера. Это может привести к короткому замыканию и повреждению Вашей видеокамеры.

Индикатор оставшегося заряда батарейного блока
Отображается оставшееся время работы батареи при съемке с видоискателем. Индикатор времени оставшегося заряда батарейного блока в окошке дисплея приблизительно указывает время записи с использованием видоискателя.

До тех пор, пока Ваша видеокамера не определит действительное время оставшегося заряда батарейного блока
В окошке дисплея будет отображаться индикация "– – – – min".

Во время зарядки батарейного блока в окошке дисплея не будет отображаться индикатор, или он будет мигать в следующих случаях:
– Отсоединен сетевой адаптер переменного тока.
– Батарейный блок установлен неправильно.
– Неисправность батарейного блока.

Рекомендуется выполнять зарядку батарейного блока при температуре окружающей среды от 10°C до 30°C.

Если питание отключается, несмотря на то что индикатор оставшегося времени работы батарейного блока показывает, что в нем остался достаточный заряд для его функционирования
Снова полностью зарядите батарейный блок, чтобы индикатор правильно показывал оставшееся время работы батарейного блока.

Step 1 Preparing the power supply

Пункт 1 Подготовка источника питания

Charging time/Время зарядки

Battery pack/ Батарейный блок	Full charge (normal charge)/ Полная зарядка
NP-FM30 (supplied) / (прилагается)	145 (85)
NP-FM50	150 (90)
NP-FM70	240 (180)
NP-QM71	260 (200)
NP-FM90	330 (270)
NP-FM91 / QM91	360 (300)

Approximate number of minutes to charge an empty battery pack at 25°C (77°F)

Приблизительное время в минутах для зарядки полностью разряженного батарейного блока при 25°C

Recording time/Время записи

Battery pack/ Батарейный блок	Recording with the viewfinder/ Запись с помощью видоискателя		Recording with the LCD screen/ Запись с помощью экрана ЖКД	
	Continuous* Непрерывная*	Typical** Типичная**	Continuous* Непрерывная*	Typical** Типичная**
NP-FM30 (supplied) / (прилагается)	165	90	120	65
NP-FM50	265	145	195	105
NP-FM70	540	295	400	220
NP-QM71	640	350	465	255
NP-FM90	820	450	600	330
NP-FM91 / QM91	955	525	695	380

Approximate number of minutes when you use a fully charged battery pack

* Approximate continuous recording time at 25°C (77°F). The battery life will be shorter if you use your camcorder in a cold environment.
** Approximate number of minutes when recording while you repeat recording start / stop, zooming and turning the power on / off. The actual battery life may be shorter.

Приблизительное время в минутах при использовании полностью заряженного батарейного блока

* Приблизительное время непрерывной записи при температуре 25°C. При использовании видеокамеры в холодных условиях срок службы батарейного блока будет короче.
** Приблизительное время в минутах при записи с неоднократным пуском/ остановкой записи, трансфокацией и включением/выключением питания. Фактический срок службы заряда батарейного блока может быть короче.

Step 1 Preparing the power supply

Пункт 1 Подготовка источника питания

Playing time/Время воспроизведения

Battery pack/ Батарейный блок	Playing time on LCD screen/ Время воспроизведения на экране ЖКД	Playing time with LCD closed/ Время воспроизведения при закрытом ЖКД
NP-FM30 (supplied) / (прилагается)	120	175
NP-FM50	195	280
NP-FM70	400	570
NP-QM71	465	675
NP-FM90	600	865
NP-FM91 / QM91	695	1010

Approximate number of minutes when you use a fully charged battery pack

Approximate continuous playing time at 25°C (77°F).
The battery life will be shorter if you use your camcorder in a cold environment.
The recording and playing time of a normally charged battery are about 90% of those of a fully charged battery.

What is the "InfoLITHIUM"?
The "InfoLITHIUM" is a lithium ion battery pack which can exchange data such as battery consumption with compatible electronic equipment. This unit is compatible with the "InfoLITHIUM" battery pack (M series). Your camcorder operates only with the "InfoLITHIUM" battery pack. "InfoLITHIUM" M series battery packs have the mark.
"InfoLITHIUM" is a trademark of Sony Corporation.

Приблизительное время в минутах при использовании полностью заряженного батарейного блока

Приблизительное время непрерывного воспроизведения при 25°C.
При использовании видеокамеры в холодных условиях срок службы батарейного блока будет короче.
Время записи и воспроизведения с нормально заряженным батарейным блоком составляет примерно 90% от времени с полностью заряженным батарейным блоком.

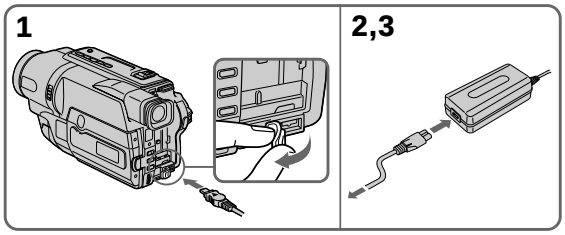
Что такое "InfoLITHIUM"?
"InfoLITHIUM" представляет собой литиево-ионный батарейный блок, который может обмениваться данными, такими как потребление заряда батарейного блока, с совместимой электронной аппаратурой. Это устройство совместимо с батарейным блоком "InfoLITHIUM" (серии M). Ваша видеокамера работает только с батарейным блоком "InfoLITHIUM". На батарейных блоках "InfoLITHIUM" имеется знак .
"InfoLITHIUM" является торговой маркой корпорации Sony Corporation.

Step 1 Preparing the power supply

Connecting to a wall socket

When you use your camcorder for a long time, we recommend that you power it from a wall socket using the AC power adaptor.

(1) Open the DC IN jack cover, and connect the AC power adaptor to the DC IN jack on your camcorder with the plug's ▲ mark facing up.
(2) Connect the mains lead to the AC power adaptor.
(3) Connect the mains lead to a wall socket.



Пункт 1 Подготовка источника питания

Подсоединение к сетевой розетке

Если Вы собираетесь использовать видеокамеру длительное время, рекомендуется использовать питание от электрической сети с помощью сетевого адаптера переменного тока.

(1) Откройте крышку гнезда DC IN и подсоедините сетевой адаптер переменного тока к гнезду DC IN на Вашей видеокамеру, так чтобы знак ▲ на штекере был обращен вверх.
(2) Подсоедините провод электропитания к сетевому адаптеру переменного тока.
(3) Подсоедините провод электропитания к сетевой розетке.

Step 1 Preparing the power supply

PRECAUTION
The set is not disconnected from the AC power source (wall socket) as long as it is connected to a wall socket, even if the set itself has been turned off.

Notes
- The AC power adaptor can supply power even if the battery pack is attached to your camcorder.
- The DC IN jack has "source priority." This means that the battery pack cannot supply any power if the mains lead is connected to the DC IN jack, even when the mains lead is not plugged into the wall socket.
- Place the AC power adaptor near the wall socket. While using the AC power adaptor, if any trouble occurs with this unit, disconnect the plug from the wall socket as soon as possible to cut off the power.

Using a car battery
Use Sony DC Adaptor / Charger (optional). Refer to the operating instructions of the DC Adaptor / Charger for further information.

Пункт 1 Подготовка источника питания

ПРЕДОСТЕРЕЖЕНИЕ
Аппарат не отключается от источника переменного тока до тех пор, пока он подсоединен к электрической сети, даже если сам аппарат выключен.

Примечания
- Питание от сетевого адаптера переменного тока может подаваться даже в случае, если батарейный блок прикреплен к Вашей видеокамере.
- Гнездо DC IN обладает "приоритетом источника". Это означает, что питание от батарейного блока не подается, пока провод электропитания подсоединен к гнезду DC IN, даже если провод электропитания не включен в стенную розетку.
- Расположите сетевой адаптер переменного тока рядом с сетевой розеткой. Если при использовании сетевого адаптера переменного тока возникнут какие-либо проблемы с аппаратом, выньте вилку из сетевой розетки как можно быстрее для отключения питания.

Использование автомобильного аккумулятора
Используйте адаптер/зарядное устройство постоянного тока Sony (приобретается дополнительно). Подробные сведения приведены в инструкциях по эксплуатации адаптера/зарядного устройства постоянного тока.

Step 2 Setting the date and time

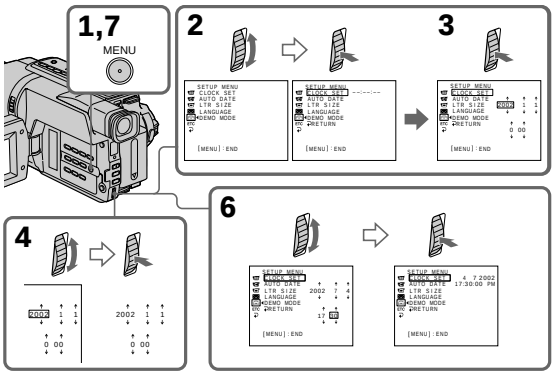
Set the date and time settings when you use your camcorder for the first time.
"CLOCK SET" will be displayed each time when you set the power switch to CAMERA unless you set the date and time settings.
If you do not use your camcorder for about 6 months, the date and time settings may be released (bars may appear) because the built-in rechargeable battery in your camcorder will have been discharged.
First, set the year, then the month, the day, the hour and then the minute.

(1) While your camcorder is in CAMERA mode, press MENU to display the menu.
(2) Turn the SEL / PUSH EXEC dial to select [icon], then press the dial.
(3) Turn the SEL / PUSH EXEC dial to select CLOCK SET, then press the dial.
(4) Turn the SEL / PUSH EXEC dial to adjust the desired year, then press the dial.
(5) Set the month, day and hour by turning the SEL / PUSH EXEC dial and pressing the dial.
(6) Set the minute by turning the SEL / PUSH EXEC dial and pressing the dial by the time signal. The clock starts to operate.
(7) Press MENU to make the menu disappear. The time indicator appears.

Пункт 2 Установка даты и времени

Если Вы используете свою видеокамеру впервые, выполните установки даты и времени.
Пока не будет произведена установка даты и времени, каждый раз при переводе переключателя POWER в положение CAMERA будет отображаться индикация "CLOCK SET".
Если видеокамера не использовалась около 6 месяцев, установки даты и времени могут исчезнуть (появятся черточки), поскольку встроенная аккумуляторная батарейка, установленная в видеокамере, разрядится.
Сначала установите год, затем месяц, день, час и минуту.

(1) В режиме CAMERA видеокамеры нажмите кнопку MENU для отображения меню.
(2) Поверните диск SEL/PUSH EXEC для выбора индикации [icon], а затем нажмите диск.
(3) Поверните диск SEL/PUSH EXEC для выбора команды CLOCK SET, а затем нажмите диск.
(4) Поверните диск SEL/PUSH EXEC для выбора нужного года, а затем нажмите диск.
(5) Установите месяц, день и час путем вращения диска SEL/PUSH EXEC и нажимания диска.
(6) Установите минуты, поворачивая диск SEL/PUSH EXEC и нажимая на него в момент передачи сигнала точного времени. Часы начнут работать.
(7) Нажмите кнопку MENU для того, чтобы меню исчезло. Появится индикатор времени.



Step 2 Setting the date and time

To check the preset date and time
Press DATE to display the date indicator.
Press TIME to display the time indicator.
Press DATE (or TIME) and then press TIME (or DATE) to simultaneously display the date and time indicator.
Press DATE and / or TIME again. The date and / or time indicator disappears.

The year changes as follows:

1995 ← · · · · → 2002 ← · · · · → 2079

Auto date function
When you use your camcorder for the first time, turn it on and set the date and time to your local time before you start recording (p. 22). The date is automatically recorded for 10 seconds after you start recording **(Auto date function)**. This function works only once a day.

Note on the time indicator
The internal clock of your camcorder operates on a 24-hour cycle.

Note on the auto date function
You can change the AUTO DATE setting by selecting ON or OFF in the menu settings. The auto date function automatically displays the date once a day.
However, the date may automatically appear more than once a day if:
– you set the date and time.
– you eject and insert the tape again.
– you stop recording within 10 seconds.
– you set AUTO DATE to OFF once and set it back to ON in the menu settings.

Пункт 2 Установка даты и времени

Для проверки предварительно установленных даты и времени
Нажмите кнопку DATE для отображения индикатора даты.
Нажмите кнопку TIME для отображения индикатора времени.
Нажмите кнопку DATE (или TIME), а затем нажмите кнопку TIME (или DATE) для одновременного отображения индикатора даты и времени.
Нажмите еще раз кнопку DATE и/или TIME. Индикатор даты и/или времени исчезнет.

Год изменяется следующим образом:

Функция автоматической даты
При первом использовании видеокамеры включите ее и выполните установку даты и времени в соответствии со своим часовым поясом перед началом записи (стр. 22). Дата автоматически записывается в течение 10 секунд после начала записи **(функция автоматической даты)**. Эта функция срабатывает только один раз в день.

Примечание по индикатору времени
Встроенные часы Вашей видеокамеры работают в 24-часовом режиме.

Примечание по функции автоматической даты
Вы можете изменять установку AUTO DATE путем выбора положений ON или OFF в установках меню. Функция автоматической даты автоматически отображает дату один раз в день.
Однако, дата может автоматически появляться больше одного раза при:
– установке даты и времени.
– выталкивании и установке ленты обратно на место.
– остановке записи в пределах 10 секунд.
– установке команды AUTO DATE в положение OFF и возвращении в положение ON в установках меню.

Step 3 Inserting a cassette

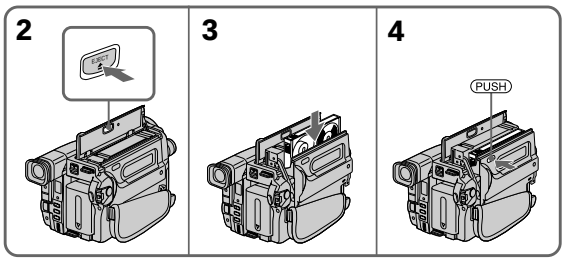
When you want to record in the Hi8 Hi8 system, use Hi8 Hi8 video cassettes.

(1) Prepare the power supply (p. 15).
(2) Open the lid of the cassette compartment, and press ⏏ EJECT. The cassette compartment opens automatically.
(3) Insert a cassette into the cassette compartment with its window facing out and the write-protect tab on the cassette up.
(4) Close the cassette compartment by pressing the (PUSH) mark on the cassette compartment. The cassette compartment automatically goes down.
(5) Close the lid of the cassette compartment.

Пункт 3 Установка кассеты

Если необходимо выполнить запись в системе Hi8 Hi8, пользуйтесь видеокассетами Hi8 Hi8.

(1) Подготовьте источник питания (стр. 15).
(2) Откройте крышку кассетного отсека, а затем нажмите кнопку ⏏ EJECT. Кассетный отсек откроется автоматически.
(3) Вставьте кассету в кассетный отсек, чтобы окошко было обращено наружу, а лепесток защиты от записи - вверх.
(4) Закройте кассетный отсек, нажав метку (PUSH) на отсеке. Кассетный отсек автоматически закроется.
(5) Закройте крышку кассетного отсека.



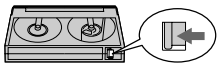
To eject a cassette
Follow the procedure above, and eject the cassette in step **3**.

Для извлечения кассеты
Выполните приведенную выше процедуру и извлеките кассету в пункте **3**.

Step 3 Inserting a cassette

Notes
- Do not press the cassette compartment down. Doing so may cause a malfunction.
- The cassette compartment may not be closed when you press any part of the cassette compartment other than the (PUSH) mark.
- Do not pick up your camcorder by the lid of the cassette compartment.

To prevent accidental erasure
Slide the write-protect tab on the cassette to expose the red mark.



Пункт 3 Установка кассеты

Примечания
- Не нажимайте вниз кассетный отсек. Это может привести к неисправности.
- Кассетный отсек может не закрыться, если Вы нажмете на любую другую часть кассетного отсека, а не на знак (PUSH).
- Не поднимайте видеокамеру за крышку кассетного отсека.

Для предотвращения случайного стирания
Передвиньте лепесток защиты записи на кассете, так чтобы появилась красная метка.

Recording a picture

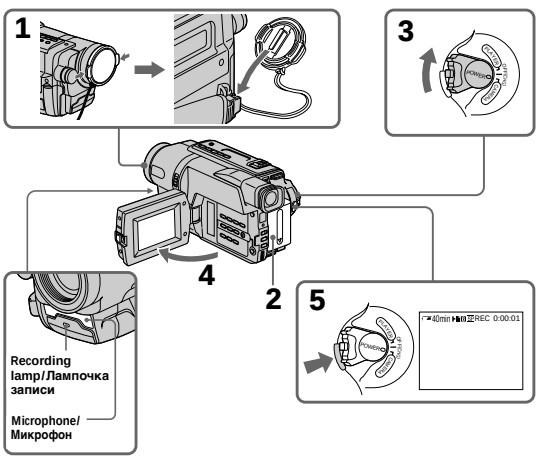
Your camcorder automatically focuses for you.

(1) Remove the lens cap by pressing both knobs on its sides and attach the lens cap to the grip strap.
(2) Install the power source and insert a cassette. See “Step 1” to “Step 3” for more information (p. 15 to 25).
(3) Set the POWER switch to CAMERA while pressing the small green button. Your camcorder is set to the standby mode.
(4) Open the LCD panel while pressing OPEN. The viewfinder automatically turns off.
(5) Press START/STOP. Your camcorder starts recording. The REC indicator appears. The recording lamp located on the front of your camcorder lights up. To stop recording, press START/STOP again.
The recording lamp lights up in the viewfinder when you record with the viewfinder.

Запись изображения

Ваша видеокамера автоматически выполняет фокусировку за Вас.

(1) Снимите крышку объектива, нажав обе кнопки на ее кромке, и прикрепите крышку объектива к ремню для захвата.
(2) Установите источник питания и вставьте кассету. Подробные сведения см. в разделах с пункта 1 по пункт 3 (стр. 15 – 25).
(3) Нажав маленькую зеленую кнопку, установите переключатель POWER в положение CAMERA. Ваша видеокамера переключится в режим ожидания.
(4) Нажав кнопку OPEN, откройте панель ЖКД. Видоискатель выключится автоматически.
(5) Нажмите кнопку START/STOP.
Видеокамера начнет запись. Появится индикатор REC. Загорится лампочка записи, расположенная на передней панели видеокамеры. Для остановки записи нажмите кнопку START/STOP еще раз.
При записи с помощью видоискателя внутри него высветится лампочка записи.



Recording a picture

Notes
- Fasten the grip strap firmly.
- Do not touch the built-in microphone during recording.

Note on Recording mode
Your camcorder records and plays back in the SP (standard play) mode and in the LP (long play) mode. Select SP or LP in the menu settings (p. 81). In the LP mode, you can record twice as long as in the SP mode. When you record a tape in the LP mode on your camcorder, we recommend that you play back the tape on your camcorder.

To enable smooth transition
You can make the transition between the last scene you recorded and the next scene smooth as long as you do not eject the cassette even if you turn off your camcorder. When you change the battery pack, set the POWER switch to OFF (CHG).

If you leave your camcorder in the standby mode for 5 minutes while the cassette is inserted
Your camcorder automatically turns off. This is to save battery power and to prevent battery and tape wear. To resume the standby mode for recording, set the POWER switch to OFF (CHG) once, then turn it to CAMERA, or press START/STOP without chainging the POWER switch again to start recording. If your camcorder is in the standby mode, with no cassette inserted, it does not turn off automatically.

When you record in the SP and LP modes on one tape or you record some scenes in the LP mode
The playback picture may be distorted.

To set the counter to 0:00:00
Press COUNTER RESET (p. 122).

Запись изображения

Примечания
- Плотно пристегните ремень для захвата видеокамеры.
- Не прикасайтесь к встроенному микрофону во время записи.

Примечание по режиму записи
Ваша видеокамера выполняет запись и воспроизведение в режиме SP (стандартное воспроизведение) и в режиме LP (долгоиграющее воспроизведение). Выберите режим SP или LP в установках меню (стр. 86). В режиме LP можно выполнять запись в два раза дольше по времени, чем в режиме SP. Если лента была записана на Вашей видеокамере в режиме LP, ее рекомендуется воспроизводить на этой же видеокамере.

Для обеспечения плавного перехода
Вы можете выполнять плавный переход между последним записанным эпизодом и следующим эпизодом до тех пор, пока не извлечете кассету при выключенном питании. При замене батарейного блока установите переключатель POWER в положение OFF (CHG).

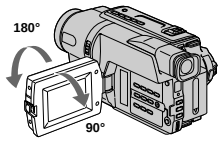
Если Вы оставите Вашу видеокамеру в режиме ожидания на 5 минут при вставленной кассете
Ваша видеокамера автоматически выключится. Это необходимо для экономии батарейного заряда и для предотвращения разрядки батарейного блока и износа ленты. Для возврата в режим ожидания при записи сначала установите переключатель POWER в положение OFF (CHG), затем переведите его в положение CAMERA или нажмите START/STOP, не изменяя положение переключателя POWER, чтобы начать запись.
Видеокамера не будет автоматически выключаться, если она находится в режиме ожидания без кассеты.

Если Вы выполняете запись в режимах SP и LP на одну ленту или записываете некоторые эпизоды в режиме LP
Воспроизводимое изображение может быть искажено.

Для установки счетчика на 0:00:00
Нажмите кнопку COUNTER RESET (стр. 122).

Adjusting the LCD screen

The LCD panel moves about 90 degrees to the viewfinder side and about 180 degrees to the lens side.
If you turn the LCD panel over so that it faces the other way, the indicator appears on the screen **(Mirror mode)**.



When closing the LCD panel, set it vertically until it clicks, and swing it into the camcorder body.

Note
When using the LCD screen except in the mirror mode, the viewfinder automatically turns off.

When you use the LCD screen outdoors in direct sunlight
The LCD screen may be difficult to see. If this happens, we recommend that you record with the viewfinder.

When you adjust angles of the LCD panel
Be sure to open the LCD panel up to 90 degrees.

Picture in the mirror mode
The picture on the LCD screen is a mirror-image. However, the picture will be normal when recorded.

Регулировка экрана ЖКД

Панель ЖКД можно поворачивать примерно на 90 градусов в сторону видоискателя и примерно на 180 градусов в сторону объектива.
Если Вы повернете панель ЖКД так, что она будет направлена в другую сторону, на экране появится индикатор **(Зеркальный режим)**.

При закрывании панели ЖКД установите ее вертикально, пока не раздастся щелчок, а затем присоедините ее к корпусу видеокамеры.

Примечание
При любом положении экрана ЖКД, кроме того, когда включается зеркальный режим, видоискатель автоматически отключается.

Если Вы используете экран ЖКД вне помещения под прямым солнечным светом
Возможно, будет трудно разглядеть что-либо на экране ЖКД. В этом случае рекомендуется выполнять запись с помощью видоискателя.

При регулировке углов панели ЖКД
Откройте панель ЖКД на 90 градусов.

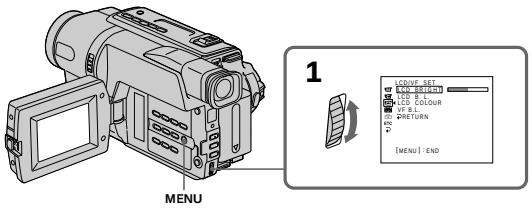
Изображение в зеркальном режиме
Изображение на экране ЖКД будет отображаться зеркально. Однако запись изображения будет нормальной.

During recording in the mirror mode
DATE and TIME on your camcorder do not work.

Indicators in the mirror mode
- The STBY indicator appears as ❚❚● and REC as ●. Some of the other indicators appear mirror-reversed and others are not displayed.
- The date appears mirror-reversed when the auto date function is working. However, the date will be normal when recorded.

Adjusting the brightness of the LCD screen

(1) In CAMERA mode, select LCD BRIGHT in in the menu settings (p. 80).
(2) Turn the SEL / PUSH EXEC dial to adjust the brightness of the LCD screen.



LCD screen backlight
You can adjust the brightness of the backlight. Select LCD B.L. in the menu settings (p. 80).

Even if you adjust the LCD screen backlight
The recorded picture will not be affected.

Во время записи в зеркальном режиме
Функции DATE и TIME на видеокамере не работают.

Индикаторы в зеркальном режиме
- Индикатор STBY появится в виде ❚❚●, а индикатор REC-в виде ●. Некоторые другие индикаторы появятся в зеркально отображенном виде, а некоторые из них не будут отображаться совсем.
- Когда работает функция автоматической записи даты, дата появляется в зеркально отраженном виде. Однако после записи дата будет нормальной.

Регулировка яркости экрана ЖКД

(1) В режиме CAMERA выберите LCD BRIGHT в пункте в установках меню (стр. 85).
(2) Поверните диск SEL/PUSH EXEC для регулировки яркости экрана ЖКД.

Задняя подсветка экрана ЖКД
Вы можете отрегулировать яркость задней подсветки. Выберите команду LCD B.L. в установках меню (стр. 85).

Даже при регулировке задней подсветки экрана ЖКД
Это не отразится на записанном изображении.

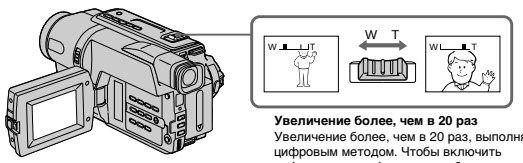
After recording

(1) Set the POWER switch to OFF (CHG).
(2) Close the LCD panel.
(3) Eject the cassette.
(4) Attach the lens cap.

After using your camcorder
Remove the battery pack from your camcorder to avoid turning on the built-in light accidentally.

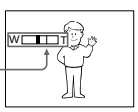
Using the zoom feature

Move the power zoom lever a little for a slower zoom. Move it further for a faster zoom.
Using the zoom function sparingly results in better-looking recordings.
"T" side: for telephoto (subject appears closer)
"W" side: for wide-angle (subject appears farther away)



To use ZOOM greater than 20×
Zoom greater than 20× is performed digitally. To activate digital zoom, select the digital zoom power in D ZOOM in the menu settings. The digital zoom function is set to OFF as a default setting (p. 79).
The picture quality deteriorates as the picture is processed digitally.

The right side of the bar shows the digital zooming zone. The digital zooming zone appears when you select the digital zoom power in D ZOOM in the menu settings. /
Правая сторона полосы на экране показывает зону цифровой трансфокации.
Если Вы выберете степень цифровой трансфокации D ZOOM в установках меню, появится зона цифровой трансфокации.



После записи

(1) Установите переключатель POWER в положение OFF (CHG).
(2) Закройте панель ЖКД.
(3) Извлеките кассету.
(4) Прикрепите крышку объектива.

По окончании использования видеокамеры
Отсоедините батарейный блок от видеокамеры во избежание случайного включения встроенной подсветки.

Использование функции трансфокации

Немного передвиньте рычаг привода трансфокатора для медленной трансфокации. Передвиньте его дальше для ускоренной трансфокации.
Использование умеренного увеличения обеспечивает наилучшие результаты.
Сторона "T": для телефото (объект приближается)
Сторона "W": для широкоугольного вида (объект удаляется)

Увеличение более, чем в 20 раз
Увеличение более, чем в 20 раз, выполняется цифровым методом. Чтобы включить цифровую трансфокацию, выберите степень цифровой трансфокации в пункте D ZOOM в установках меню. Функция цифровой трансфокации на предприятии-изготовителе по умолчанию установлена в положение OFF (стр. 84).
Качество изображения ухудшается, так как обработка изображения ведется цифровым способом.

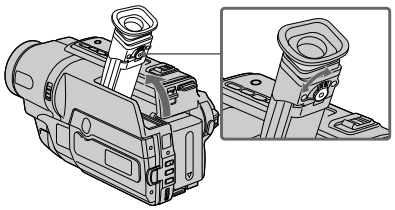
Notes on digital zoom
- Digital zoom starts to function when zoom exceeds 20×.
- The picture quality deteriorates as you go toward the "T" side.

When you shoot close to a subject
If you cannot get a sharp focus, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 80 cm (about 2 feet 5/8 in.) away from the lens surface in the telephoto position, or about 1 cm (about 1/2 in.) away in the wide-angle position.

To record pictures with the viewfinder – Adjusting the viewfinder

If you record pictures with the LCD panel closed, check the picture with the viewfinder. Adjust the viewfinder lens to your eyesight so that the indicators in the viewfinder come into sharp focus.

Lift up the viewfinder and move the viewfinder lens adjustment lever.



Viewfinder backlight
You can change the brightness of the backlight. Select VF B.L. in the menu settings (p. 81).

Примечания по цифровой трансфокации
- Цифровая трансфокация активизируется, если увеличение превышает 20×.
- Качество изображения ухудшается по мере приближения к стороне "T".

При съемке объекта с близкого расстояния
Если Вы не можете получить четкую фокусировку, передвиньте рычаг привода трансфокатора в сторону "W" до получения четкой фокусировки. В положении "телефото" можно выполнять съемку объекта, который находится на расстоянии не менее 80 см от объектива или около 1 см-в положении "широкоугольный".

Для записи изображений с помощью видоискателя – регулировка видоискателя

Если Вы будете записывать изображения при закрытой панели ЖКД, проверьте изображение с помощью видоискателя. Отрегулируйте объектив видоискателя в соответствии со своим зрением, так чтобы индикаторы в видоискателе были четко сфокусированы.

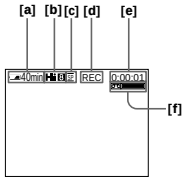
Поднимите видоискатель и подвигайте рычаг регулировки объектива видоискателя.

Задняя подсветка видоискателя
Можно изменять яркость задней подсветки. Выберите VF B.L. в установках меню (стр. 86).

Recording a picture

Indicators displayed in the recording mode

The indicators are not recorded on tape.



[a]: Remaining battery time indicator
[b]: Hi8 format indicator
This appears while playing back or recording in Hi8 format.
[c]: Recording mode indicator/ Mirror mode indicator
[d]: STBY/REC indicator
[e]: Tape counter indicator
[f]: Remaining tape indicator
This appears after you insert a cassette and record or play back for a while.

Remaining battery time indicator
The remaining battery time indicator indicates the approximate recording time. The indicator may not be correct, depending on the conditions in which you are recording. When you close the LCD panel and open it again, it takes about 1 minute for the correct remaining battery time in minutes to be displayed.

Запись изображения

Индикаторы, отображаемые в режиме записи

Индикаторы не записываются на ленту.

[a]: Индикатор оставшегося заряда батарейного блока
[b]: Индикатор формата Hi8
Появляется во время воспроизведения или записи в формате Hi8.
[c]: Индикатор режима записи/ Индикатор зеркального режима
[d]: Индикатор STBY/REC
[e]: Индикатор счетчика ленты
[f]: Индикатор оставшейся ленты
Этот индикатор появляется на некоторое время после установки кассеты и выполнения записи или воспроизведения.

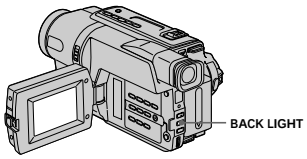
Индикатор времени оставшегося заряда батарейного блока
Индикатор оставшегося заряда батарейного блока указывает приблизительное время записи. Индикатор может быть неточным в зависимости от условий выполнения записи. Когда Вы закрываете панель ЖКД и открываете её снова, требуется около 1 минуты для правильного отображения оставшегося времени работы батарейного блока в минутах.

Recording a picture

Shooting backlit subjects – BACK LIGHT

When you shoot a subject with the light source behind the subject or a subject with a light background, use the backlight function.

Press BACK LIGHT in CAMERA mode.
The indicator appears on the screen.
To cancel, press BACK LIGHT again.



If you press EXPOSURE when shooting backlit subjects
The backlight function will be cancelled.

Запись изображения

Съемка объектов с задней подсветкой – BACK LIGHT

Если Вы выполняете съемку объекта с источником света позади него или же объекта со светлым фоном, используйте функцию задней подсветки.

Нажмите кнопку BACK LIGHT в режиме CAMERA.
На экране появится индикатор .
Для отмены нажмите кнопку BACK LIGHT еще раз.

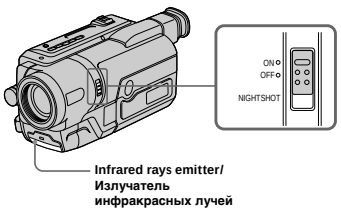
Если вы нажмете кнопку EXPOSURE при выполнении съемки объектов с задней подсветкой
Функция задней подсветки будет отменена.

Recording a picture

Shooting in the dark – NightShot

The NightShot function enables you to shoot a subject in a dark place. For example, you can satisfactorily record the environment of nocturnal animals for observation when you use this function.

While your camcorder is in CAMERA mode, slide NIGHTSHOT to ON.
and "NIGHTSHOT" indicators flash on the screen. To cancel the NightShot function, slide NIGHTSHOT to OFF.



Запись изображения

Съемка в темноте – NightShot

Функция NightShot позволяет Вам выполнять съемку объектов в темных местах. Например, при использовании данной функции Вы можете с успехом выполнять съемку ночных животных для наблюдения.

В то время, когда ваша видеокамера находится в режиме CAMERA, передвиньте переключатель NIGHTSHOT в положение ON. Индикаторы и "NIGHTSHOT" начнут мигать на экране. Для отмены функции ночной съемки передвиньте переключатель NIGHTSHOT в положении OFF.

Recording a picture

Using the NightShot Light

The picture will be clearer with the NightShot Light on. To enable the NightShot Light, set N.S.LIGHT to ON in the menu settings (p. 79).

Notes
- Do not use the NightShot function in bright places (ex. outdoors in the daytime). This may cause your camcorder to malfunction.
- When you keep NIGHTSHOT setting to ON in normal recording, the picture may be recorded in incorrect or unnatural colours.
- If focusing is difficult with the autofocus mode when using the NightShot function, focus manually.

While using the NightShot function, you cannot use the following functions:
– Exposure
– PROGRAM AE

NightShot Light
NightShot Light rays are infrared and so are invisible. The maximum shooting distance using the NightShot Light is about 3 m (10 feet).

Запись изображения

Использование подсветки для режима NightShot

Изображение станет ярче, если включить режим NightShot. Для включения режима NightShot установите переключатель N.S.LIGHT в положение ON в установках меню (стр. 84).

Примечания
- Не используйте функцию NightShot в ярких местах (например, на улице в дневное время). Это может привести к неисправности Вашей видеокамеры.
- При удержании установки NIGHTSHOT в положении ON при нормальной записи изображение может быть записано в неправильных или неестественных цветах.
- Если фокусировка затруднена в автоматическом режиме при использовании функции NightShot, выполните фокусировку вручную.

При использовании функции NightShot Вы не можете использовать следующие функции:
– Экспозиция
– PROGRAM AE

Подсветка для режима NightShot
Лучи подсветки для режима NightShot являются инфракрасными и поэтому невидимыми. Максимальное расстояние для съемки при использовании подсветки для режима NightShot равно примерно 3 м.

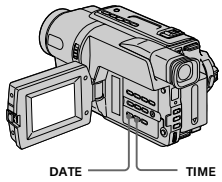
Recording a picture

Superimposing the date and time on pictures

You can record the date and / or time displayed on the screen superimposed on the picture. Carry out the following operations in CAMERA mode.

Press DATE to record the date.
Press TIME to record the time.
Press DATE (or TIME), then press TIME (or DATE) to record the date and time.

Press DATE and / or TIME again. The date and / or time indicator disappears.



When you purchase your camcorder, the clock setting is set to off. Set the date and time to your local time before using (p. 22).

Note
The date and time indicators recorded manually cannot be deleted.

If you do not record the date and time in the picture
Record the date and time in the black screen as the background for about 10 seconds, then erase the date and time indicators before starting actual recording.

Запись изображения

Наложение даты и времени на изображения

Вы можете записывать дату и/или время, отображаемые на экране, которые будут наложены на изображение.
Выполните следующие операции в режиме CAMERA.

Нажмите кнопку DATE для записи даты.
Нажмите кнопку TIME для записи времени.
Нажмите кнопку DATE (или TIME), затем нажмите кнопку TIME (или DATE) для записи даты и времени.

Нажмите кнопку DATE и/или TIME еще раз. Индикатор даты и/или времени исчезнет.

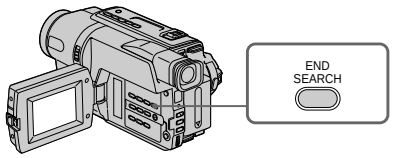
Когда Вы покупаете Вашу видеокамеру, установка часов выключена. Установите дату и время в соответствии с Вашим местным временем перед использованием (стр.22).

Примечание
Индикаторы даты и времени, записанные вручную, не могут быть удалены.

Если Вы не записываете дату и время на изображении
Запишите дату и время на фоне черного экрана в течение 10 секунд, затем сотрите индикаторы даты и времени перед тем, как начать действительную запись.

Checking the recording – END SEARCH

You can use this button to record a picture from the last recorded scene successively.



You can go to the end of the recorded section after you record.

Press END SEARCH in CAMERA mode.
The last 5 seconds of the recorded section are played back and returns to the standby mode. You can monitor the sound from the speaker.

Notes
- If you start recording after using the end search function, occasionally, the transition between the last scene you recorded and the next scene may not be smooth.
- Once you eject the cassette after you have recorded on the tape, the end search function does not work.

Проверка записи – END SEARCH

Вы можете использовать эту кнопку для успешной записи изображения сразу после последнего записанного эпизода.

Вы можете перейти к концу записанной части ленты после выполнения записи.

Нажмите кнопку END SEARCH в режиме CAMERA.
Будут воспроизведены последние 5 секунд записанного эпизода, и видеокамера возвращается в режим ожидания. Звук можно контролировать через громкоговоритель.

Примечания
- Если Вы случайно начали запись после использования функции поиска конца записи, то переход между последним записанным эпизодом и следующим записываемым эпизодом может не быть плавным.
- Если Вы извлечете кассету после того, как будет выполнена запись на ленте, функция поиска конца записи не будет работать.

Playing back a tape

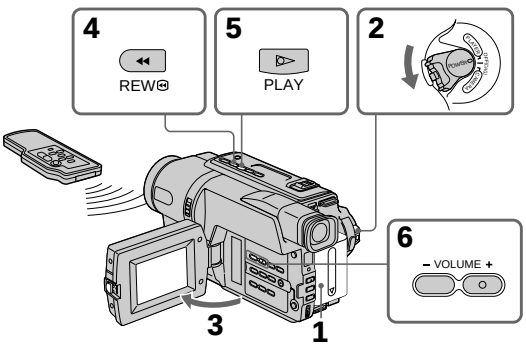
You can monitor the playback picture on the LCD screen. If you close the LCD panel, You can monitor the playback picture in the viewfinder.
(1) Install the power source and insert the recorded tape.
(2) Set the POWER switch to PLAYER while pressing the small green button.
(3) Open the LCD panel while pressing OPEN.
(4) Press ◄◄ to rewind the tape.
(5) Press ► to start playback.
(6) To adjust the volume, press either of the two VOLUME buttons. The speaker on your camcorder is silent when the LCD panel is closed.

You can control playback using the Remote Commander supplied with your camcorder. (CCD-TRV107E / TRV208E / TRV408E only)

Воспроизведение ленты

Можно просматривать воспроизводимое изображение на экране ЖКД. Если панель ЖКД закрыта, воспроизводимое изображение можно просматривать в видоискателе.
(1) Установите источник питания и вставьте записанную ленту.
(2) Нажав маленькую зеленую кнопку, установите переключатель POWER в положение PLAYER.
(3) Нажав кнопку OPEN, откройте панель ЖКД.
(4) Нажмите кнопку ◄◄ для ускоренной перемотки ленты назад.
(5) Нажмите кнопку ► для включения воспроизведения.
(6) Для регулировки громкости нажимайте одну из двух кнопок VOLUME. Если панель ЖКД на видеокамере закрыта, динамик не будет работать.

Вы можете контролировать воспроизведение с помощью пульта дистанционного управления, прилагаемого к этой видеокамере. (Только модель CCD-TRV107E/TRV208E/TRV408E)

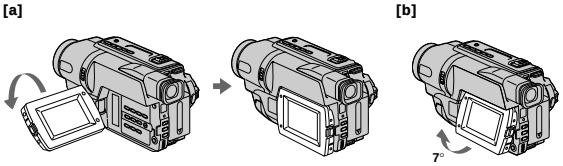


To stop playback
Press ■.

Для остановки воспроизведения
Нажмите кнопку ■.

Playing back a tape

When monitoring on the LCD screen
You can turn the LCD panel over and move it back to the camcorder body with the LCD screen facing out **[a]**. You can adjust the angle of the LCD panel by lifting the LCD panel up by 7 degrees **[b]**.



To display the screen indicators – Display function

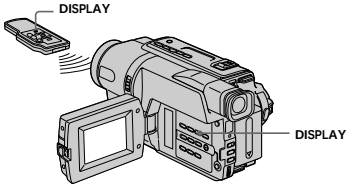
Press DISPLAY on your camcorder or the Remote Commander (CCD-TRV107E / TRV208E / TRV408E only) supplied with your camcorder. The indicators appear on the screen.
To make the indicators disappear, press DISPLAY again.

Воспроизведение ленты

Во время контроля на экране ЖКД
Вы можете повернуть панель управления и придвинуть ее обратно на место к корпусу видеокамеры, так что экран ЖКД будет обращен наружу **[a]**. Вы можете отрегулировать угол панели ЖКД, поднимая панель ЖКД вверх на 7 градусов **[b]**.

Для отображения экранных индикаторов – Функция индикации

Нажмите кнопку DISPLAY на Вашей видеокамере или на пульте дистанционного управления (Только модель CCD-TRV107E/TRV208E/TRV408E), который прилагается к этой видеокамере.
На экране появятся индикаторы.
Для того чтобы индикаторы исчезли, нажмите еще раз кнопку DISPLAY.



Playing back a tape

Various playback modes

To operate video control buttons, set the POWER switch to PLAYER.

To view a still image (playback pause)
Press ❚❚ during playback. To resume playback, press ❚❚ or ►.

To advance the tape
Press ►► in the stop mode. To resume normal playback, press ►.

To rewind the tape
Press ◄◄ in the stop mode. To resume normal playback, press ►.

To locate a scene monitoring the picture (picture search)
Keep pressing ◄◄ or ►► during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing or rewinding the tape (skip scan)
Keep pressing ◄◄ while rewinding or ►► while advancing the tape. To resume rewinding or advancing, release the button.

To view the picture at slow speed (slow playback) (CCD-TRV107E/ TRV208E/TRV408E only)
Press ❚► on the Remote Commander during playback. To resume normal playback, press ►.

To search the last scene recorded (END SEARCH)
Press END SEARCH in the stop mode. The last 5 seconds of the recorded section are played back and the playback stops.

Воспроизведение ленты

Различные режимы воспроизведения

Для использования кнопок управления видеоизображением установите переключатель POWER в положение PLAYER.

Для просмотра неподвижного изображения (пауза воспроизведения)
Нажмите во время воспроизведения кнопку ❚❚. Для возобновления обычного воспроизведения нажмите кнопку ❚❚ или кнопку ►.

Для ускоренной перемотки ленты вперед
Нажмите в режиме остановки кнопку ►►. Для возобновления обычного воспроизведения нажмите кнопку ►.

Для ускоренной перемотки ленты назад
Нажмите в режиме остановки кнопку ◄◄. Для возобновления обычного воспроизведения нажмите кнопку ►.

Для поиска эпизода во время контроля изображения (поиск изображения)
Держите нажатой кнопку ◄◄ или ►► во время воспроизведения. Для восстановления обычного воспроизведения отпустите кнопку.

Для контроля изображения на высокой скорости во время ускоренной перемотки ленты вперед или назад (поиск методом прогона)
Держите нажатой кнопку ◄◄ во время ускоренной перемотки ленты назад или кнопку ►► во время ускоренной перемотки ленты вперед. Для возобновления обычной перемотки ленты вперед или назад отпустите кнопку.

Для просмотра изображения на замедленной скорости (замедленное воспроизведение) (Только модель CCD-TRV107E/TRV208E/TRV408E)
Нажмите во время воспроизведения кнопку ❚► на пульте дистанционного управления. Для возобновления обычного воспроизведения нажмите кнопку ►.

Для поиска последнего записанного эпизода (END SEARCH)
Нажмите кнопку END SEARCH в режиме остановки. Будут воспроизведены последние 5 секунд записанного участка, после чего воспроизведение остановится.

Playing back a tape

In the various playback modes
Sound is muted.

When the playback pause mode lasts for 5 minutes
Your camcorder automatically enters the stop mode. To resume playback, press ►.

If slow playback lasts for about 1 minute (CCD-TRV107E/TRV208E/TRV408E only)
Your camcorder automatically returns to normal speed.

When you play back a tape recorded in the LP mode
Noise may appear during playback pause mode, slow playback* or picture search.

When you play back a tape in reverse
Horizontal noise may appear at the centre or top and bottom of the screen.
This is not a malfunction.

* CCD-TRV107E / TRV208E / TRV408E only

Воспроизведение ленты

В различных режимах воспроизведения
Звук будет приглушен.

Если режим паузы воспроизведения продлится 5 минут
Видеокамера автоматически переключится в режим останова. Для возобновления воспроизведения нажмите кнопку ►.

Если замедленное воспроизведение продолжается примерно 1 минуту (Только модель CCD-TRV107E/TRV208E/TRV408E)
Видеокамера автоматически вернется в режим обычной скорости.

При воспроизведении ленты, записанной в режиме LP
В режиме паузы воспроизведения, замедленного воспроизведения* или поиска изображения могут возникать помехи.

При воспроизведении ленты в обратном направлении
В центре или вверху и внизу экрана могут появляться горизонтальные помехи. Это не является неисправностью.

* Только модель CCD-TRV107E/TRV208E/ TRV408E

Viewing the recording on TV

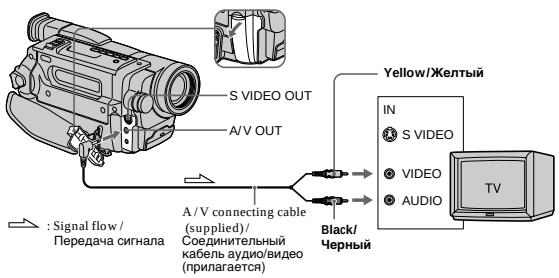
Connect your camcorder to your TV with the A / V connecting cable supplied with your camcorder to watch the playback picture on the TV screen. You can operate the playback control buttons in the same way as when you monitor playback pictures on the LCD screen. We recommend that you power your camcorder from a wall socket using the AC power adaptor, when monitoring the playback picture on the TV screen (p. 20). Refer to the operating instructions of your TV.

Open the jack cover. Connect your camcorder to the TV using the A / V connecting cable. Then, set the TV / VCR selector on the TV to VCR.

Просмотр записи на экране телевизора

Для просмотра воспроизводимого изображения на экране телевизора подсоедините видеокамеру к телевизору с помощью соединительного кабеля аудио/ видео, который входит в комплект поставки видеокамеры. Вы можете использовать кнопки управления воспроизведением таким же способом, как при управлении воспроизводимым изображением на экране ЖКД. При просмотре изображения на экране телевизора рекомендуется подключать видеокамеру к стенной розетке электросети с помощью сетевого адаптера переменного тока (стр. 20). Обратитесь к инструкции по эксплуатации Вашего телевизора.

Откройте крышку гнезд. Подсоедините Вашу видеокамеру к телевизору с помощью соединительного кабеля аудио/видео. Затем установите переключатель TV/VCR на Вашем телевизоре в положение VCR.



If your TV is already connected to a VCR

Connect your camcorder to the LINE IN input on the VCR by using the A / V connecting cable supplied with your camcorder. Set the input selector on the VCR to LINE.

Если Ваш телевизор уже подсоединен к видеомагнитофону

Подсоедините Вашу видеокамеру к входному гнезду LINE IN на видеомагнитофоне с помощью соединительного кабеля аудио/ видео, который прилагается к Вашей видеокамере. Установите селектор входного сигнала на видеомагнитофоне в положение LINE.

Viewing the recording on TV

To connect to a TV without Video/Audio input jacks

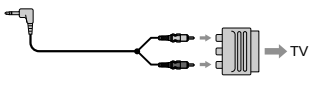
Use a PAL system RFU adaptor (optional). Refer to the operating instructions of your TV and the RFU adaptor.

If your TV is a stereo type

Connect the audio plug of the A / V connecting cable supplied to the left (white) input jack of your TV.

If your TV/VCR has a 21-pin connector (EUROCONNECTOR)

– EUROPEAN MODELS ONLY
Use the 21-pin adaptor supplied with your camcorder.



If your TV has an S video jack
Connect using an S video cable (optional) to obtain optimum quality screen images. With this connection, you do not need to connect the yellow (video) plug of the A / V connecting cable.
Connect an S video cable (optional) to the S video jacks on both your camcorder and the TV.

To display the screen indicators on TV
Set DISPLAY to V-OUT / LCD in the menu settings (p. 83). Then press DISPLAY on your camcorder. To turn off the screen indicators, press DISPLAY on your camcorder again.

Просмотр записи на экране телевизора

Для подключения к Вашему телевизору без входных гнезд аудио/видео

Используйте ВЧ адаптер системы PAL (не прилагается).
Обратитесь к инструкции по эксплуатации Вашего телевизора и ВЧ-адаптера.

Если Ваш телевизор стереофонического типа

Подключите аудиоштекер прилагаемого соединительного кабеля аудио/видео к левому (белому) входному гнезду телевизора.

Если в Вашем телевизоре/ видеомагнитофоне имеется 21-штырьковый разъем (EUROCONNECTOR)

— ТОЛЬКО ДЛЯ ЕВРОПЕЙСКИХ МОДЕЛЕЙ
Используйте 21-штырьковый адаптер, прилагаемый к Вашей видеокамере.

Если в Вашем телевизоре имеется гнездо S видео
Выполните подключение с помощью кабеля S video (приобретается дополнительно) для воспроизведения изображений с оптимальным качеством. При данном подсоединении Вам не нужно подсоединять желтый штекер (видео) соединительного кабеля аудио/видео. Подсоедините кабель S видео (приобретается дополнительно) к гнездам S видео на Вашей видеокамере и Вашем телевизоре.

Для отображения экранных индикаторов на экране телевизора
Установите для параметра DISPLAY значение V-OUT/LCD в установках меню (стр. 88). Затем нажмите кнопку DISPLAY на видеокамере. Для отключения экранных индикаторов нажмите кнопку DISPLAY на видеокамере еще раз.

— Advanced Recording Operations —

Using the wide mode

You can record a cinema-like picture (CINEMA) or a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9FULL). Refer to the operating instructions of your TV.

CINEMA
Black bands appear on the screen during recording in the CINEMA mode **[a]**, playing back on a normal TV **[b]** or a wide-screen TV **[c]**. If you set the screen mode of the wide-screen TV to the zoom mode, a picture without black bands appears **[d]**.

16:9FULL
The picture during recording in the 16:9FULL mode **[e]**, or playing back on a normal TV **[f]** or a wide-screen TV **[g]** is horizontally compressed. If you set the screen mode of the wide-screen TV to the full mode, you can watch correctly proportioned images in wide-screen format **[h]**.

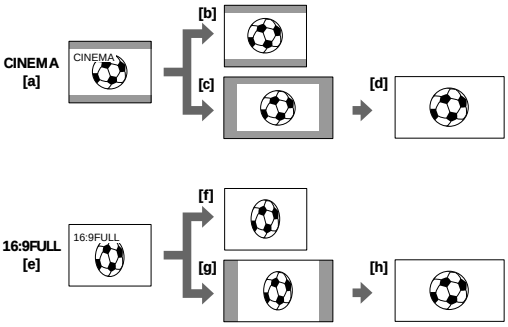
— Усовершенствованные операции съемки —

Использование широкоэкранного режима

Вы можете записывать изображение наподобие кино (CINEMA) или широкоэкранное изображение 16:9 для просмотра на широкоэкранном телевизоре 16:9 (16:9FULL). Обратитесь к инструкции по эксплуатации Вашего телевизора.

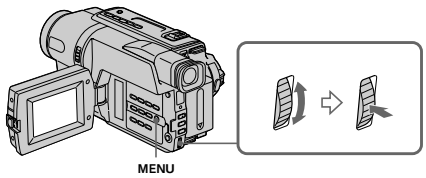
CINEMA
Черные полосы появятся на экране во время записи в режиме CINEMA **[a]**, воспроизведения на обычном телевизоре **[b]** или на широкоэкранном телевизоре **[c]**. Если Вы установите экранный режим на широкоэкранном телевизоре в режим масштабирования, то изображение появится без черных полос **[d]**.

16:9FULL
Изображение во время записи в режиме 16:9 FULL **[e]** либо во время воспроизведения на обычном телевизоре **[f]** или широкоэкранном телевизоре **[g]** будет сжато по горизонтали. Если установить экранный режим широкоэкранного телевизора в полноэкранный режим, то можно просматривать изображения в правильной пропорции в широкоэкранном формате **[h]**.



Using the wide mode

In CAMERA mode, set 16:9WIDE to CINEMA or 16:9FULL in the menu settings (p. 79).



To cancel the wide mode
Set 16:9WIDE to OFF in the menu settings.

If the wide mode is set to 16:9FULL (CCD-TRV408E only)
The SteadyShot function does not work. If you select 16:9FULL in the menu settings when the SteadyShot function is working, "☞" flashes and the SteadyShot function does not function.

In the wide mode
You cannot select the bounce function with FADER.

Date or time indicator
When you record in the 16:9FULL mode, the date or time indicator will be widened on wide-screen TVs.

During recording
You cannot select or cancel the wide mode. When you cancel the wide mode, set your camcorder to the standby mode and then set 16:9WIDE to OFF in the menu settings.

Использование широкоэкранного режима

В режиме CAMERA установите для параметра 16:9WIDE значение CINEMA или 16:9FULL в установках меню (стр. 84).

Для отмены широкоэкранного режима
Установите команду 16:9WIDE в положение OFF в установках меню.

Когда для широкоэкранного режима установлен параметр 16:9FULL (Только модель CCD-TRV408E)
Функция устойчивой съемки не работает. Если при работе функции устойчивой съемки в установках меню выбрать параметр 16:9FULL, замигает индикатор "☞", и функция устойчивой съемки перестанет работать.

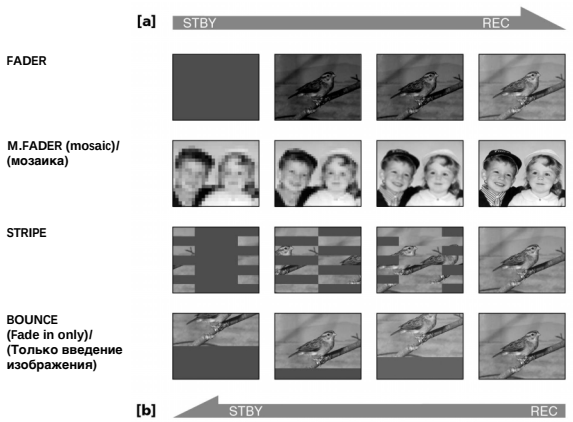
В широкоэкранном режиме
Нельзя выбрать функцию перескакивания с помощью команды FADER.

Индикатор даты или времени
Если Вы выполняете запись в режиме 16:9FULL, индикатор даты или времени расширится на широкоэкранном телевизоре.

Во время записи
Вы не можете выбрать или отменить широкоэкранный режим. Чтобы отменить широкоэкранный режим, установите Вашу видеокамеру в режим ожидания, а затем установите команду 16:9WIDE в положение OFF.

Using the fader function

You can fade in or out to give your recording a professional appearance.



MONOTONE
When fading in, the picture gradually changes from black-and-white to colour.
When fading out, the picture gradually changes from colour to black-and-white.

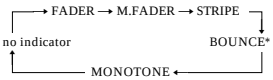
Использование функции фейдера

Вы можете выполнять плавное введение и выведение изображения, чтобы придать Вашей съемке профессиональный вид.

MONOTONE
При введении изображение будет постепенно изменяться от черно-белого до цветного.
При выведении изображение будет постепенно изменяться от цветного до черно-белого.

Using the fader function

(1) When fading in [a]
In the standby mode, press FADER until the desired fader indicator flashes.
When fading out [b]
In the recording mode, press FADER until the desired fader indicator flashes.
The indicator changes as follows:



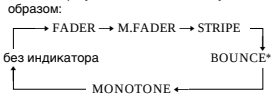
The last selected fader mode is indicated first of all.

* Fade in only

(2) Press START/STOP. The fader indicator stops flashing.
After the fade in/out is carried out, your camcorder automatically returns to the normal mode.

Использование функции фейдера

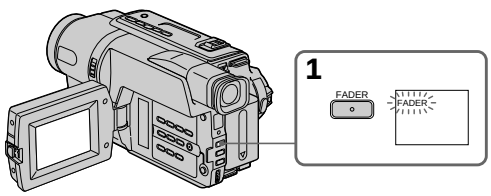
(1) При введении изображения [a]
В режиме ожидания нажимайте кнопку FADER до тех пор, пока не начнет мигать нужный индикатор фейдера.
При выведении изображения [b]
В режиме записи нажимайте кнопку FADER до тех пор, пока не начнет мигать нужный индикатор фейдера.
Индикатор будет изменяться следующим образом:



Последний из выбранных режимов фейдера отображается первым.

* Только введение изображения

(2) Нажмите кнопку START/STOP. Индикатор фейдера перестанет мигать.
После того, как выполнено введение/выведение изображения, Ваша видеокамера автоматически вернется в обычный режим.



To cancel the fader function
Before pressing START/STOP, press FADER until the indicator disappears.

Для отмены функции фейдера
Перед тем, как нажать кнопку START/STOP, нажимайте кнопку FADER до тех пор, пока не исчезнет индикатор.

Using the fader function

The date, time indicator and title do not fade in or fade out
Erase them before operating the fader function if they are not needed.

While using the bounce function, you cannot use the following functions:
– Focus
– Zoom
– Picture effect

Note on the bounce function
The BOUNCE indicator does not appear in the following mode or functions:
– D ZOOM is activated in the menu settings
– Wide mode
– Picture effect
– PROGRAM AE

Использование функции фейдера

Индикатор даты, времени и титр не вводятся или не выводятся
Если они не нужны, удалите их до начала работы функции фейдера.

Во время использования функции перескакивания Вы не можете использовать следующие функции:
– Фокусировка
– Трансфокация
– Эффект изображения

Примечание по функции перескакивания
Индикатор BOUNCE не появляется в следующих режимах или при использовании следующих функций:
– Команда D ZOOM приведена в действие в установках меню
– Широкоэкранный режим
– Эффект изображения
– PROGRAM AE

Using special effects – Picture effect

You can digitally process images to obtain special effects like those in films or on the TV.

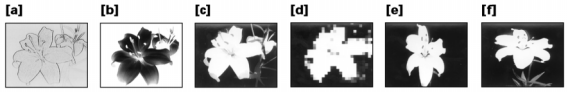
PASTEL [a] : The contrast of the picture is emphasised, and the picture looks like an animated cartoon.
NEG.ART [b] : The colour and brightness of the picture are reversed.
SEPIA : The picture is sepia.
B&W : The picture is monochrome (black-and-white).
SOLARIZE [c] : The light intensity is clearer, and the picture looks like an illustration.
MOSAIC [d] : The picture is mosaic.
SLIM [e] : The picture expands vertically.
STRETCH [f] : The picture expands horizontally.

Использование специальных эффектов – Эффект изображения

Вы можете выполнять обработку изображения цифровым методом для получения специальных эффектов, как в кинофильмах или на экранах телевизоров.

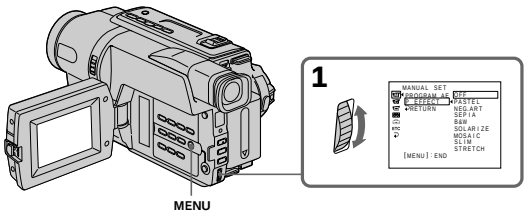
PASTEL [a] : Подчеркивается контрастность изображения, которому придается мультипликационный вид.
NEG.ART [b] : Цвет и яркость изображения будут негативными.
SEPIA : Изображение будет в цвете сепии.
B&W : Изображение будет монохроматическим (черно-белым).
SOLARIZE [c] : Яркость света будет усиленной, а изображение будет выглядеть как иллюстрация.
MOSAIC [d] : Изображение будет мозаическим.
SLIM [e] : Изображение растянется по вертикали.
STRETCH [f] : Изображение растянется по горизонтали.

[a] **[b]** **[c]** **[d]** **[e]** **[f]**



Using special effects – Picture effect

(1) In CAMERA mode, select P EFFECT in VM in the menu settings (p. 79).
(2) Select the desired picture effect mode in the menu settings, then press the SEL / PUSH EXEC dial.



To cancel the picture effect function
Set P EFFECT to OFF in the menu settings.

When you set the POWER switch to OFF (CHG)
Your camcorder automatically returns to the normal mode.

Использование специальных эффектов – Эффект изображения

(1) В режиме CAMERA выберите команду P EFFECT в VM в меню установок (стр. 84).
(2) Выберите режим нужного эффекта изображения в меню установок, а затем нажмите диск SEL/PUSH EXEC.

Для выключения функции эффекта изображения
Установите команду P EFFECT в положение OFF в меню установок.

При установке переключателя POWER в положение OFF (CHG)
Ваша видеокамера автоматически вернется в обычный режим.

Using the PROGRAM AE function

You can select the PROGRAM AE (Auto Exposure) mode to suit your specific shooting requirements.

SPOTLIGHT (Spotlight)
This mode prevents people's faces, for example, from appearing excessively white when shooting subjects lit by strong light in the theatre.

PORTRAIT (Soft portrait)
This mode brings out the subject while creating a soft background for subjects such as people or flowers.

SPORTS (Sports lesson)
This mode minimises shake on fast-moving subjects such as in tennis or golf.

BEACH&SKI (Beach & ski)
This mode prevents people's faces from appearing dark in strong light or reflected light, such as at a beach in midsummer or on a ski slope.

SUNSETMOON (Sunset & moon)
This mode allows you to maintain atmosphere when you are recording sunsets, general night views, fireworks displays and neon signs.

LANDSCAPE (Landscape)
This mode is for when you are recording distant subjects such as mountains and prevents your camcorder from focusing on glass or metal mesh in windows when you are recording a subject behind glass or a screen.

Использование функции PROGRAM AE

Вы можете выбрать режим PROGRAM AE (автоматическая экспозиция) в соответствии со специфическими требованиями к съемке.

SPOTLIGHT (Прожекторное освещение)
Например, данный режим предотвращает появление лиц людей в чрезмерно белом цвете во время съемки с сильным освещением в театре.

PORTRAIT (Мягкий портрет)
Этот режим позволяет выделить объект на размытом фоне, и подходит для съемки, например, людей или цветов.

SPORTS (Спортивные состязания)
Этот режим позволяет минимизировать дрожание при съемке быстро движущихся предметов, например, при игре в теннис или гольф.

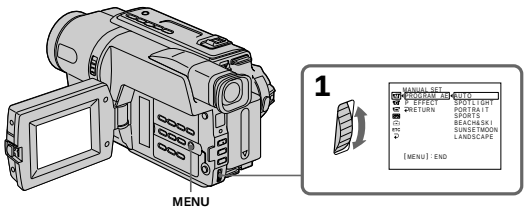
BEACH&SKI (Пляж и лыжи)
Этот режим предотвращает появление темных лиц людей в зоне сильного света или отраженного света, например, на пляже в разгар лета или на снежном склоне.

SUNSETMOON (Заход солнца и луны)
Этот режим позволяет точно отражать обстановку при съемке заходов солнца, общих ночных видов, фейерверков и неоновых реклам.

LANDSCAPE (Ландшафт)
Этот режим позволяет выполнять съемку отдаленных объектов, например, гор, и предотвращает фокусировку видеокамеры на стекло или металлическую решетку на окнах, когда Вы выполняете запись объектов позади стекла или решетки.

Using the PROGRAM AE function

(1) In CAMERA mode, select PROGRAM AE in in the menu settings (p. 79).
(2) Select the desired PROGRAM AE mode in the menu settings, then press the SEL / PUSH EXEC dial.



To cancel the PROGRAM AE function
Set PROGRAM AE to AUTO in the menu settings.

Использование функции PROGRAM AE

(1) В режиме CAMERA выберите команду PROGRAM AE в в меню установок (стр. 84).
(2) Выберите нужный режим PROGRAM AE в меню установок, а затем нажмите диск SEL/PUSH EXEC.

Для отмены функции PROGRAM AE
Установите команду PROGRAM AE в положение AUTO в установках меню.

Using the PROGRAM AE function

Notes
- In the spotlight, sports lesson and beach & ski modes, you cannot take close-ups. This is because your camcorder is set to focus only on subjects in the middle to far distance.
- In the sunset & moon and landscape modes, your camcorder is set to focus only on distant subjects.
- While using the PROGRAM AE function, you cannot select the bounce function with FADER.
- While settings NIGHTSHOT to ON, the PROGRAM AE function does not work. (The indicator flashes.)

Even if the PROGRAM AE function is selected
You can adjust the exposure manually.

If you are recording under a discharge tube such as a fluorescent lamp, sodium lamp or mercury lamp
Flickering or changes in colour may occur in the following modes. If this happens, turn the PROGRAM AE function off:
– Soft portrait mode
– Sports lesson mode

Использование функции PROGRAM AE

Примечания
- В режимах прожекторного освещения, спортивных состязаний, а также в пляжном и лыжном режиме нельзя выполнять съемку крупным планом. Это объясняется тем, что Ваша видеокамера настроена для фокусировки только на объекты, находящиеся на среднем и дальнем расстояниях.
- В режиме захода солнца и луны, а также в ландшафтном режиме Ваша видеокамера настроена на фокусировку только на дальние объекты.
- При использовании функции PROGRAM AE нельзя выбрать функцию перескакивания с помощью функции FADER.
- Во время установки команды NIGHTSHOT в положение ON, функция PROGRAM AE не работает. (Индикатор будет мигать.)

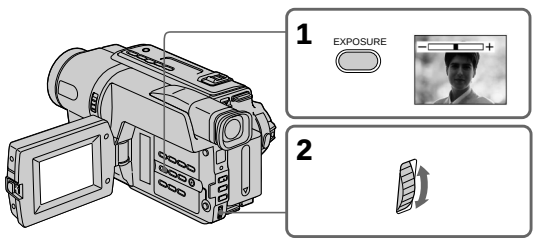
Даже если выбрана функция PROGRAM AE
Можно настроить экспозицию вручную.

Если Вы выполняете запись при использовании газоразрядной лампы, натриевой лампы или ртутной лампы
В следующих режимах может возникнуть мерцание или искажение цветов. Если это произойдет, выключите функцию PROGRAM AE:
– Мягкий портретный режим
– Режим спортивных состязаний

Adjusting the exposure manually

You can manually adjust and set the exposure. Adjust the exposure manually in the following cases:
– The subject is backlit
– Bright subject and dark background
– To record dark pictures (e.g. night scenes) faithfully

(1) In CAMERA mode, press EXPOSURE.
The exposure indicator appears on the screen.
(2) Turn the SEL / PUSH EXEC dial to adjust the brightness.



To return to the automatic exposure mode
Press EXPOSURE.

Note
When you adjust the exposure manually, the backlight function does not work in CAMERA mode.

Your camcorder automatically returns to the automatic exposure mode:
– if you change the PROGRAM AE mode
– if you slide NIGHTSHOT to ON

Регулировка экспозиции вручную

Вы можете отрегулировать и установить экспозицию вручную.
Отрегулируйте экспозицию вручную в следующих случаях:
– Объект на фоне задней подсветки
– Яркий объект на темном фоне
– Для записи темных изображений (например, ночных сцен) с большой достоверностью

(1) В режиме CAMERA нажмите кнопку EXPOSURE.
На экране появится индикатор экспозиции.
(2) Поверните диск SEL/PUSH EXEC для регулировки яркости.

Для возврата в режим автоматической экспозиции
Нажмите кнопку EXPOSURE.

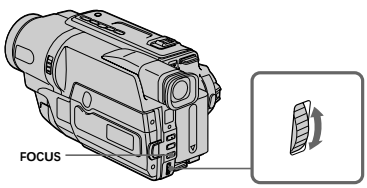
Примечание
При выполнении регулировки экспозиции вручную функция задней подсветки не работает в режиме CAMERA.

Ваша видеокамера автоматически вернется в режим автоматической экспозиции:
– если Вы измените режим PROGRAM AE
– если Вы передвинете переключатель NIGHTSHOT в положение ON

Focusing manually

You can gain better results by manually adjusting the focus in the following cases:
- The autofocus mode is not effective when shooting:
  – subjects through glass coated with water droplets.
  – horizontal stripes.
  – subjects with little contrast with backgrounds such as walls and sky.
- When you want to change the focus from a subject in the foreground to a subject in the background
- Shooting a stationary subject when using a tripod

(1) In CAMERA mode, press FOCUS.
The indicator appears on the screen.
(2) Turn the SEL / PUSH EXEC dial to sharpen focus.



To return to the autofocus mode
Press FOCUS.

Фокусировка вручную

Вы можете получить лучшие результаты путем регулировки вручную в следующих случаях:
- Режим автоматической фокусировки является неэффективным при выполнении съемки:
  – объектов через покрытое каплями стекло.
  – горизонтальных полос.
  – объектов с малой контрастностью на таком фоне, как стена или небо.
- Если Вы хотите выполнить изменение фокусировки с объекта на переднем плане на объект на заднем плане.
- При выполнении съемки стационарных объектов с использованием треноги.

(1) В режиме CAMERA нажмите кнопку FOCUS.
На экране появится индикатор .
(2) Поворачивайте диск SEL/PUSH EXEC для выполнения фокусировки.

Для возвращения в режим автоматической фокусировки
Нажмите кнопку FOCUS.

Focusing manually

To focus precisely
Adjust the zoom by first focusing at the "T" (telephoto) position and then shooting at the "W" (wide-angle) position. This makes focusing easier.

When you shoot close to the subject
Focus at the end of the "W" (wide-angle) position.

☞ **changes to the following indicators:**
when recording a distant subject.
when the subject is too close to focus on.

Фокусировка вручную

Для точной фокусировки
Отрегулируйте трансфокацию, сначала выполнив фокусировку в положении "T" (телефото), а затем выполнив съемку в положении "W" (широкоугольный вид). Это упростит фокусировку.

При выполнении съемки вблизи объекта
Выполните фокусировку в конце положения "W" (широкоугольный вид).

Индикация ☞ изменится на следующие индикаторы:
при записи удаленного объекта.
если объект находится слишком близко, чтобы выполнить фокусировку на него.

Superimposing a title

You can select one of eight preset titles and two custom titles (p. 60). You can also select the language, colour, size, and position of titles.

(1) In CAMERA mode, press TITLE to display the title menu.
(2) Turn the SEL / PUSH EXEC dial to select 🗀, and then press the dial.
(3) Select the desired title in the menu settings, then press the SEL / PUSH EXEC dial.
The titles are displayed in the language you selected.
(4) Change the colour, size, or position, if necessary.
① Turn the SEL / PUSH EXEC dial to select the colour, size, or position, then press the dial. The item appears.
② Turn the SEL / PUSH EXEC dial to select the desired item, then press the dial.
③ Repeat steps ① and ② until the title is laid out as desired.
(5) Press the SEL / PUSH EXEC dial again to complete the setting.
(6) Press START / STOP to start recording.
(7) When you want to stop recording the title, press TITLE.

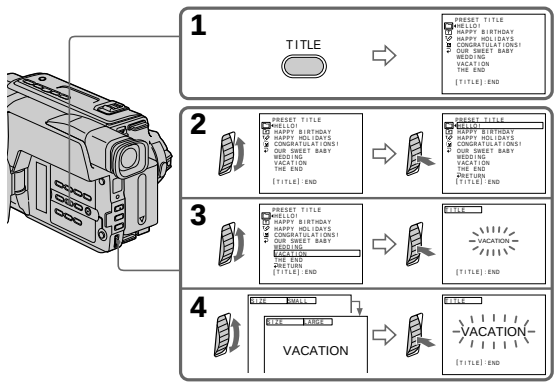
Наложение титра

Вы можете выбрать один из восьми предварительно установленных титров и двух собственных титров (стр. 60). Вы можете также выбирать язык, цвет, размер и положение титров.

(1) В режиме CAMERA нажмите кнопку TITLE для отображения меню титров.
(2) Поверните диск SEL/PUSH EXEC для выбора 🗀, а затем нажмите на диск.
(3) Выберите нужный титр в установках меню, а затем нажмите диск SEL/PUSH EXEC.
Титры отобразятся на выбранном языке.
(4) Измените цвет, размер или положение титра, если нужно.
① Поверните диск SEL/PUSH EXEC для выбора цвета, размера или положения титра, а затем нажмите диск. Появится нужный пункт.
② Поверните диск SEL/PUSH EXEC для выбора нужного пункта, а затем нажмите диск.
③ Повторяйте пункты ① и ② до тех пор, пока титр не будет настроен так, как нужно.
(5) Нажмите диск SEL/PUSH EXEC для завершения установки.
(6) Нажмите кнопку START/STOP для начала записи.
(7) Если Вы захотите остановить запись титра, нажмите кнопку TITLE.

Superimposing a title

Наложение титра



To superimpose the title while you are recording
Press TITLE while you are recording, and carry out steps 2 to 5. When you press the SEL / PUSH EXEC dial at step 5, the title is superimposed.

To select the language of a preset title
If you want to change the language, select 🖻 before step 2. Then select the desired language and return to step 2.

Для наложения титра во время записи
Нажмите кнопку TITLE во время записи и выполните действия пунктов 2 – 5. Если Вы нажмете диск SEL/PUSH EXEC в пункте 5, титр будет наложен.

Для выбора языка предварительно установленного титра
Если Вы хотите изменить язык, выберите индикацию 🖻 перед пунктом 2. Затем выберите нужныи язык и вернитесь к пункту 2.

Superimposing a title

Note
Both the date and time or either of them may not be displayed depending on the size or position of the title.

If you display the menu or title menu while superimposing a title
The title is not recorded while the menu or title menu is displayed.

To use the custom title
If you want to use the custom title, select 🗀 in step 2.

Title setting
• The title colour changes as follows:
WHITE ↔ YELLOW ↔ VIOLET ↔ RED ↔ CYAN ↔ GREEN ↔ BLUE
• The title size changes as follows:
SMALL ↔ LARGE
You cannot input 13 characters or more in LARGE size. If you input more than 12 characters, the title size returns to SMALL even if you select LARGE.
• The title position changes as follows:
1 ↔ 2 ↔ 3 ↔ 4 ↔ 5 ↔ 6 ↔ 7 ↔ 8 ↔ 9
The larger the position number, the lower the title is positioned.
When you select the title size "LARGE," you cannot choose position 9.
When you select the title size "LARGE" in the CINEMA mode, you cannot choose position 8 nor 9.

When you are selecting and setting the title
You cannot record the title displayed on the screen.

When you superimpose a title while you are recording
The beep does not sound.

While you are playing back
You can superimpose a title. However, the title is not recorded on tape.
You can record a title when you dub a tape connecting your camcorder to the VCR with the A / V connecting cable.

Наложение титра

Примечание
Индикация даты и времени или же одна из них могут не отображаться на дисплее в зависимости от размера или положения титра.

Если отображается меню или меню титров при наложении титра
Титр не будет записываться во время отображения меню или меню титров.

Для использования собственного титра
Если Вы хотите использовать собственный титр, выберите установку 🗀 в пункте 2.

Установка титра
• Цвет титра изменяется следующим образом:
WHITE (белый) ↔ YELLOW (желтый) ↔ VIOLET (фиолетовый) ↔ RED (красный) ↔ CYAN (голубой) ↔ GREEN (зеленый) ↔ BLUE (синий)
• Размер титра изменяется следующим образом:
SMALL (маленький) ↔ LARGE (большой)
Нельзя ввести 13 и более символов, если для размера выбрано значение LARGE. Если Вы введете более 12 символов, то размер титра возвратится к установке SMALL, даже при выборе установки LARGE.
• Позиция титра изменяется следующим образом:
1 ↔ 2 ↔ 3 ↔ 4 ↔ 5 ↔ 6 ↔ 7 ↔ 8 ↔ 9
Чем выше номер позиции титра, тем ниже расположен титр.
Если Вы выберете размер титра "LARGE", Вы не сможете выбрать положение 9.
Если Вы выберете размер титра "LARGE" в режиме CINEMA, Вы не сможете выбрать ни положение 8, ни положение 9.

Во время выбора и установки титра
Нельзя записать титр, отображаемый на экране.

При наложении титра во время записи
Зуммерный сигнал не будет звучать.

Во время воспроизведения
Можно наложить титр. Однако титр не записывается на ленту.
Можно записать титр при перезаписи ленты, подсоединив видеокамеру к видеомагнитофону с помощью соединительного кабеля аудио/видео.

Making your own titles

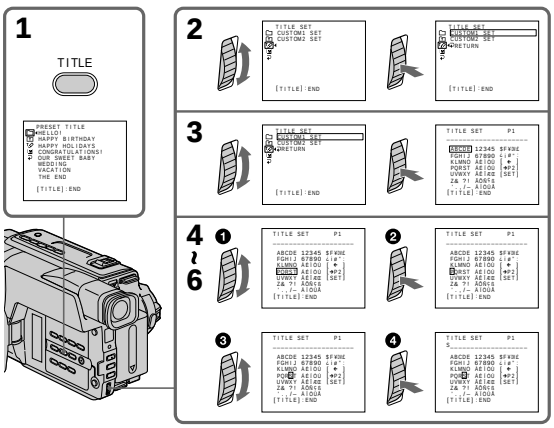
You can make up to two titles and store them in your camcorder. Each title can have up to 20 characters.

(1) In CAMERA or PLAYER mode, press TITLE.
(2) Turn the SEL / PUSH EXEC dial to select 1/2, then press the dial.
(3) Turn the SEL / PUSH EXEC dial to select the first line (CUSTOM1 SET) or the second line (CUSTOM2 SET), then press the dial.
(4) Turn the SEL / PUSH EXEC dial to select the column of the desired character, then press the dial.
(5) Turn the SEL / PUSH EXEC dial to select the desired character, then press the dial.
(6) Repeat steps 4 and 5 until you have selected all characters and completed the title.
(7) To finish making your own titles, turn the SEL / PUSH EXEC dial to select [SET], then press the dial. The title is stored in memory.
(8) Press TITLE to make the title menu disappear.

Создание Ваших собственных титров

Вы можете составить до двух титров и сохранить их в памяти Вашей видеокамеры. Каждый титр может содержать до 20 символов.

(1) Нажмите кнопку TITLE в режиме CAMERA или PLAYER.
(2) Поверните диск SEL/PUSH EXEC для выбора установки 1/2, а затем нажмите диск.
(3) Поверните диск SEL/PUSH EXEC для выбора первой строки (CUSTOM1 SET) или второй строки (CUSTOM2 SET), а затем нажмите на диск.
(4) Поверните диск SEL/PUSH EXEC для выбора колонки с нужным символом, а затем нажмите диск.
(5) Поверните диск SEL/PUSH EXEC для выбора нужного символа, а затем нажмите диск.
(6) Повторяйте пункты 4 и 5 до тех пор, пока Вы не выберите все символы и полностью не составите титр.
(7) Для завершения составления своих собственных титров поверните диск SEL/PUSH EXEC для выбора клманды [SET], а затем нажмите диск. Титр будет сохранен в памяти.
(8) Нажмите кнопку TITLE, чтобы исчезло меню титров.



Making your own titles

To change a title you have stored
In step 3, select CUSTOM1 SET or CUSTOM2 SET, depending on which title you want to change, then press the SEL / PUSH EXEC dial. Turn the SEL / PUSH EXEC dial to select [←], then press the dial to delete the title. The last character is erased. Enter the new title as desired.

If you take 5 minutes or longer to enter characters in the standby mode while a cassette is in your camcorder
The power automatically turns off. The characters you have entered remain stored in memory. Set the POWER switch to OFF (CHG) once, and turn it to CAMERA again, then proceed from step 1.
We recommend setting the POWER switch to PLAYER or removing the cassette so that your camcorder does not automatically turn off while you are entering title characters.

If you select [→P2]
The menu for selecting alphabet and Russian characters appears. Select [→P1] to return to the previous screen.

To erase a character
Select [←]. The last character is erased.

To enter a space
Select [Z& ?!], then select the blank part.

Создание Ваших собственных титров

Для изменения сохраненного в памяти титра
В пункте 3 выберите установку CUSTOM1 SET или CUSTOM2 SET в зависимости от титра, который Вы хотите изменить, а затем нажмите диск SEL/PUSH EXEC. Поверните диск SEL/PUSH EXEC для выбора установки [←], а затем нажмите диск для удаления титра. Последний символ будет стерт. Введите новый нужный титр.

Если Вы вводите символы в течение 5 минут или более в режиме ожидания, когда кассета находится в Вашей видеокамере
Питание выключится автоматически. Символы, которые Вы ввели, сохранятся в памяти видеокамеры. Сначала установите переключатель POWER в положение OFF (CHG), а затем снова в положение CAMERA, а затем начните с пункта 1. Рекомендуется установить переключатель POWER в положение PLAYER или вынуть кассету, чтобы Ваша видеокамера автоматически не выключалась во время ввода символов титра.

Если Вы выбрали установку [→P2]
Появится меню для выбора алфавита и русских символов. Для возврата к прежнему экрану выберите установку [→P1].

Для стирания символа
Выберите установку [←]. Последний символ будет стерт.

Для ввода интервала
Выберите [Z& ?!], а затем выберите пропуск.

Using the built-in light

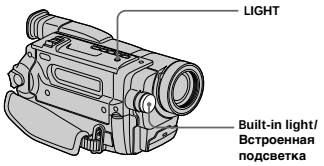
You can use the built-in light to suit your shooting situation. The recommended distance between the subject and camcorder is about 1.5 m (5 feet).

Press LIGHT repeatedly, until the ON indicator appears on the screen while your camcorder is in CAMERA mode. The built-in light turns on.
If you turn the POWER switch to OFF (CHG), the built-in light turns off simultaneously. You cannot turn the built-in light on by turning the POWER switch to CAMERA again. To turn on the built-in light again, press LIGHT again in CAMERA mode.

Использование встроенной подсветки

Вы можете использовать встроенную подсветку в соответствии с ситуацией во время съемки. Рекомендуемое расстояние между объектом и видеокамерой равно 1,5 м.

Нажимайте кнопку LIGHT, пока индикатор ON не появится на экране, когда видеокамера находится в режиме CAMERA. Встроенная подсветка включится.
Если Вы установите переключатель POWER в положение OFF (CHG), встроенная подсветка немедленно выключится. Вы не сможете включить встроенную подсветку, снова повернув переключатель POWER в положение CAMERA. Для включения встроенной подсветки нажмите снова кнопку LIGHT в режиме CAMERA.



To turn off the built-in light
Press LIGHT repeatedly, until no indicator appears on the screen.

To turn on the built-in light automatically
Press LIGHT repeatedly, until the AUTO indicator appears on the screen.
The built-in light automatically turns on and off according to the ambient brightness.

Для выключения встроенной подсветки
Нажимайте кнопку LIGHT, пока все индикаторы не исчезнут с экрана.

Для автоматического включения встроенной подсветки
Нажимайте кнопку LIGHT, пока на экране не появится индикатор AUTO.
Встроенная подсветка будет автоматически включаться и выключаться в соответствии с яркостью окружающей среды.

Using the built-in light

CAUTION

Be careful not to touch the lighting section, because the plastic window and surrounding surfaces are hot while the light is on. It remains hot for a while after the light is turned off.

DANGER

Not to be handled by children.
Emits intense heat and light.
Use with caution to reduce the risk of fire or injury to persons.
Do not directly aim the light at persons or materials from less than 1.22 m (4 feet) during use and until cool.
Turn the built-in light off when not in use.

When you press LIGHT
The indicator changes as follows:

→ AUTO → ON → no indicator

Notes
- The built-in light turns off automatically in the following cases:
  – When it stays on in the AUTO mode (AUTO) for more than 5 minutes.
  – When you leave it on for more than 5 minutes with no cassette inserted or after the tape has run out.
  To turn the built-in light on again, press LIGHT again.
- The battery pack discharges quickly while the built-in light is turned on. Turn it off when not in use.
- When you do not use your camcorder, turn the built-in light off and remove the battery pack to avoid turning on the built-in light accidentally.
- When flickering occurs while shooting in the AUTO mode (AUTO), press LIGHT until the ON indicator appears.

Использование встроенной подсветки

ВНИМАНИЕ

Будьте осторожны, чтобы не прикоснуться к секции подсветки, поскольку пластиковое окошко и прилегающие к нему поверхности нагреваются во время освещения. Оно остается некоторое горячим и после того, как подсветка будет выключена.

ОПАСНО

Не допускайте использования детьми.
Интенсивное излучение тепла и света.
Используйте осторожно, чтобы уменьшить риск воспламенения или травмирования других людей.
Не направляйте свет непосредственно на людей или материалы с расстояния менее 1,22 м во время использования, или пока аппарат не остыл.
Выключите встроенную подсветку, если не используете ее.

Если Вы нажмете кнопку LIGHT
Индикатор будет изменяться следующим образом:

→ AUTO → ON → без индикатора

Примечания
- Встроенная подсветка выключается автоматически в следующих случаях:
  – Если она находится в автоматическом режиме (AUTO) более 5 минут.
  – Если Вы оставите ее более чем на 5 минут без вставленной кассеты или после того, как закончится лента.
  Чтобы снова включить встроенную подсветку, нажмите кнопку LIGHT еще раз.
- При включенной встроенной подсветке батарейный блок быстро разряжается. Если она не используется, выключите ее.
- Если Вы не используете Вашу видеокамеру, выключите встроенную подсветку и выньте батарейный блок во избежание включения встроенной подсветки случайным образом.
- В случае мерцания изображения при съемке в автоматическом режиме (AUTO) нажимайте кнопку LIGHT до тех пор, пока не появится индикатор ON.

Using the built-in light

- The built-in light may turn on / off when you use the PROGRAM AE or backlight function while shooting in the AUTO mode (AUTO).
- The built-in light may turn off when inserting or ejecting a cassette.
- While the end search function is working, the built-in light is turned off.
- When you use the conversion lens (optional), the built-in light is blocked and may not illuminate the subject properly.

Использование встроенной подсветки

- Встроенная подсветка может включаться/выключаться при использовании функции PROGRAM AE или функции задней подсветки во время съемки в автоматическом режиме (AUTO).
- Встроенная подсветка может выключиться при вставке или извлечении кассеты.
- Во время работы функции поиска конца встроенная подсветка выключается.
- При использовании конверсионного объектива (приобретается дополнительно) встроенная подсветка будет блокирована, и объект, возможно, не будет освещен надлежащим образом.

Replacing the bulb

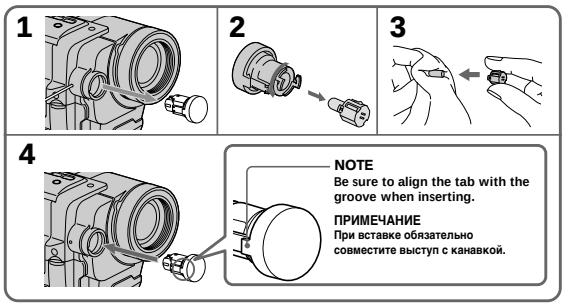
Use the Sony XB-3D halogen lamp (optional). The supplied halogen lamp is not commercially available. Purchase the Sony XB-3D halogen lamp.
Remove the power source before replacing the bulb.

(1) Remove the built-in light unit while pushing the hole under the built-in light unit using a wire.
(2) Turn the bulb housing anticlockwise and detach from the built-in light unit.
(3) Replace the bulb using a dry cloth.
(4) Attach the bulb housing by turning it clockwise, then replace the built-in light unit.

Замена лампы

Используйте галогенную лампу Sony XB-3D (приобретается дополнительно).
Галогенная лампа, входящая в комплект поставки, отдельно не продается.
Приобретите галогенную лампу Sony XB-3D.
Перед заменой лампы отсоедините источник питания.

(1) Выньте встроенную лампу, нажав на отверстие под встроенной лампой с помощью проволоки.
(2) Поверните держатель лампы против часовой стрелки и отсоедините его от устройства подсветки.
(3) Замените лампу с помощью сухой ткани.
(4) Вставьте держатель лампы, повернув его по часовой стрелке, затем установите устройство встроенной подсветки на место.



Using the built-in light

CAUTION

- When replacing the bulb, use only the Sony XB-3D halogen lamp (optional) to reduce the risk of fire.
- To prevent possible burn hazard, disconnect the power source before replacing and do not touch the bulb until the bulb becomes cool enough to handle (for about 30 minutes or more).

Note
To prevent the bulb from being smudged with finger prints, handle it with a dry cloth, etc. If the bulb is smudged, wipe it completely.

Использование встроенной подсветки

ВНИМАНИЕ

- При замене лампы, используйте только галогенную лампу Sony XB-3D (приобретается дополнительно) для уменьшения риска воспламенения.
- Для предотвращения опасности возможного возгорания отсоедините источник питания перед заменой и не прикасайтесь к лампе до тех пор, пока она достаточно не остынет (около 30 минут или более).

Примечание
Для предотвращения появления на лампе отпечатком пальцев используйте сухую ткань и т.п. Если лампа загрязнилась, тщательно протрите ее.

— Editing —

Dubbing a tape

Using the A/V connecting cable

Connect your camcorder to the VCR using the A / V connecting cable supplied with your camcorder.
You can record and edit a picture with the connected VCR by using your camcorder as a player.
Set DISPLAY to LCD in ETC in the menu settings (The default setting is set to LCD.)
If you do not make the indicators disappear, they are recorded on tapes.

Make the indicators disappear by pressing the following buttons:
– DISPLAY on your camcorder
– DISPLAY on the Remote Commander (CCD-TRV107E / TRV208E / TRV408E only)

(1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert the recorded tape into your camcorder.
(2) Set the input selector on the VCR to LINE. Refer to the operating instructions of your VCR for more information.
(3) Set the POWER switch to PLAYER.
(4) Play back the recorded tape on your camcorder.
(5) Start recording on the VCR. Refer to the operating instructions of your VCR for more information.

— Монтаж —

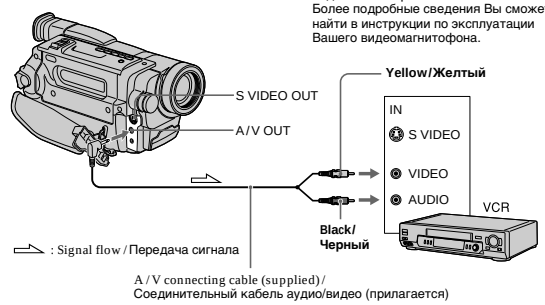
Перезапись ленты

Использование соединительного кабеля аудио/видео

Подсоедините Вашу видеокамеру к видеомагнитофону с помощью соединительного кабеля аудио/видео, который прилагается к Вашей видеокамере. Вы можете записывать и редактировать изображение с помощью подсоединенного видеомагнитофона, используя видеокамеру в качестве проигрывателя.
Установите опцию DISPLAY в положение LCD в ETC в установках меню (Установка по умолчанию соответствует LCD).
Необходимо, чтобы индикаторы исчезли, иначе они будут записаны на ленту.

Добейтесь того, чтобы индикаторы исчезли, нажимая кнопки:
– DISPLAY на видеокамере
– DISPLAY на пульте дистанционного управления (только модели CCD-TRV107E/TRV208E/TRV408E)

(1) Вставьте незаписанную ленту (или ленту, на которую Вы хотите выполнить запись) в видеомагнитофон и вставьте записанную ленту в Вашу видеокамеру.
(2) Установите селектор входного сигнала на видеомагнитофоне в положение LINE. Более подробные сведения Вы сможете найти в инструкции по эксплуатации Вашего видеомагнитофона.
(3) Установите переключатель POWER в положение PLAYER.
(4) Начните воспроизведение записанной ленты на Вашей видеокамере.
(5) Начните запись на Вашем видеомагнитофоне. Более подробные сведения Вы сможете найти в инструкции по эксплуатации Вашего видеомагнитофона.



Dubbing a tape

When you have finished dubbing a tape

Press ■ on both your camcorder and the VCR.

To prevent deterioration of pictures when dubbing

Set EDIT to ON in the menu settings before dubbing.

You can edit on VCRs that support the following systems:
8 mm, Hi8, Digital8, VHS, S-VHS, VHSC, S-VHSC, Betamax, mini DV or DV

If your VCR is a stereo type
Connect the audio plug of the A / V connecting cable supplied to the left (white) input jack of your VCR.

If your VCR has an S video jack
Connect using an S video cable (optional) to obtain optimum quality screen images.
With this connection, you do not need to connect the yellow (video) plug of the A / V connecting cable.
Connect an S video cable (optional) to the S video jacks of both your camcorder and the VCR.

Перезапись ленты

Если Вы закончили перезапись ленты

Нажмите кнопку ■ как на видеокамере, так и на видеомагнитофоне.

Для предотвращения ухудшения изображения при перезаписи

Установите EDIT в положение ON в установках меню до перезаписи.

Вы можете выполнять монтаж на видеомагнитофонах, которые поддерживают следующие системы:
8 мм, Hi8, Digital8, VHS, S-VHS, VHSC, S-VHSC, Betamax, мини DV или DV

Если Ваш видеомагнитофон стереофонического типа
Подключите аудиоштекер прилагаемого соединительного кабеля аудио/видео к левому (белому) входному гнезду видеомагнитофона.

Если в Вашем видеомагнитофоне имеется гнездо S видео
Выполните подключение с помощью кабеля S video (приобретается дополнительно) для воспроизведения изображений с оптимальным качеством.
При таком подсоединении Вам не нужно подсоединять желтый (видео) штекер соединительного кабеля аудио/видео. Подсоедините кабель S видео (приобретается дополнительно) к гнездам S видео на Вашей видеокамере и видеомагнитофоне.

Dubbing a tape easily – Easy Dubbing

VCR operation for dubbing can be controlled easily by using your camcorder when the VCR is connected.
You can select one of eight preset titles and two custom titles stored in your camcorder as instructed in "Making your own titles" (p. 60).
Select the desired colour, size, and background colour of titles.

Using the Easy Dubbing function

Step 1 Connecting the VCR (p. 68).
Step 2 Setting the VCR to operate with your camcorder (p. 69 to 73).
Step 3 Selecting the title (p. 73 to 74).
Step 4 Selecting the dubbing mode (p. 74 to 75).
Step 5 Performing Easy Dubbing (p. 75).

If you dub using the same VCR again, you can skip step 2.
If you do not need to put in a title, you can skip step 3.

Step 1: Connecting the VCR

Connect the devices as illustrated in page 66.

You can edit on VCRs that support the following systems:
8 mm, Hi8, Digital8, VHS, S-VHS, VHSC, S-VHSC, Betamax, mini DV or DV

If your VCR has an S video jack
Connect using an S video cable (optional) to obtain optimum quality screen images.
With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.
Connect an S video cable (optional) to the S video jacks of both your camcorder and the VCR.

Простая перезапись ленты – Простая перезапись

Управление перезаписью видеомагнитофона можно легко осуществлять с помощью видеокамеры, когда она подключена к видеомагнитофону.
Вы можете выбрать один из восьми предварительно установленных титров и двух собственных титров, которые сохраняются в памяти видеокамеры, в соответствии с инструкциями в разделе "Создание Ваших собственных титров" (стр. 60). Выберите необходимый цвет, размер и цвет фона титров.

Использование функции простой перезаписи

Пункт 1 Подключение видеомагнитофона (стр. 68).
Пункт 2 Настройка видеомагнитофона для работы с Вашей видеокамерой (стр. 69 – 73).
Пункт 3 Выбор титра (стр. 73 – 74).
Пункт 4 Выбор режима перезаписи (стр. 74 – 75).
Пункт 5 Выполнение простой перезаписи (стр. 75).

Если перезапись снова выполняется с помощью того же видеомагнитофона, можно пропустить пункт 2.
Если вставлять титр не нужно, можно пропустить пункт 3.

Пункт 1: Подключение видеомагнитофона

Подсоедините устройства, как показано на стр. 66.

Монтаж можно выполнять на видеомагнитофонах, которые поддерживают следующие системы:
8 мм, Hi8, Digital8, VHS, S-VHS, VHSC, S-VHSC, Betamax, мини DV или DV

Если в Вашем видеомагнитофоне имеется гнездо S video
Выполните подключение с помощью кабеля S video (приобретается дополнительно) для воспроизведения изображений с оптимальным качеством.
При таком соединении не нужно подключать желтый (видео)штекер соединительного кабеля аудио/видео.
Подсоедините кабель S video (приобретается дополнительно) к гнездам S video на Вашей видеокамере и видеомагнитофоне.

Step 2: Setting the VCR to operate with your camcorder

You can control the VCR by wireless remote control.

(1) Setting the modes to cancel recording pause on the VCR

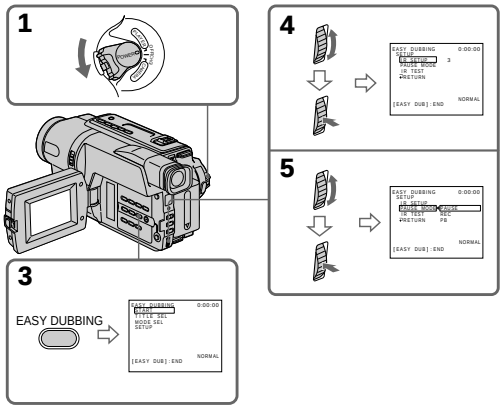
① Set the POWER switch to PLAYER on your camcorder.
② Turn the power of the connected VCR on, then set the input selector to LINE.
When you connect a video camera recorder, set its power switch to VTR/VCR.
③ Press EASY DUBBING to display the menu.
④ Turn the SEL/PUSH EXEC dial to select SETUP, then press the dial.
⑤ Turn the SEL/PUSH EXEC dial to select PAUSE MODE, then press the dial.
⑥ Turn the SEL/PUSH EXEC dial to select the mode to cancel recording pause on the VCR, then press the dial.

Пункт 2: Настройка видеомагнитофона для работы с Вашей видеокамерой

Камера может действовать как беспроводный пульт дистанционного управления для видеомагнитофона.

(1) Установка режимов для отмены паузы при записи на видеомагнитофоне

① Установите переключатель POWER в положение PLAYER на Вашей видеокамере.
② Включите питание подключенного видеомагнитофона и установите селектор входного сигнала в положение LINE.
При подсоединении видеокамеры установите ее переключатель питания в положение VTR/VCR.
③ Нажмите кнопку EASY DUBBING для отображения меню.
④ Поверните диск SEL/PUSH EXEC для выбора SETUP, а затем нажмите на диск.
⑤ Поверните диск SEL/PUSH EXEC для выбора PAUSE MODE, а затем нажмите на диск.
⑥ Поверните диск SEL/PUSH EXEC, чтобы выбрать режим для отмены паузы при записи на видеомагнитофоне, а затем нажмите на диск.



Buttons for cancelling recording pause on the VCR
The buttons vary depending on your VCR. To cancel recording pause:
– Select PAUSE if the button to cancel recording pause is ❚❚.
– Select REC if the button to cancel recording pause is ●.
– Select PB if the button to cancel recording pause is ►.

(2) Setting the IR SETUP code

① Turn the SEL/PUSH EXEC dial to select IR SETUP, then press the dial.
② Turn the SEL/PUSH EXEC dial to select the IR SETUP code of your VCR, then press the dial.

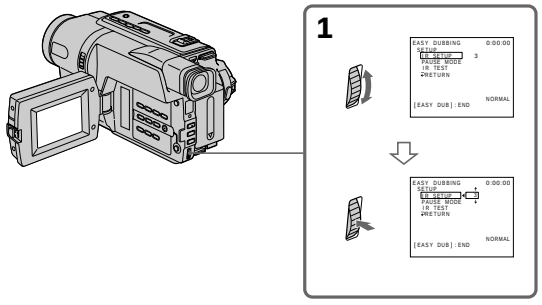
Check the code in "About the IR SETUP code" (p. 71).

Кнопки для отмены паузы при записи на видеомагнитофоне
Кнопки отличаются в зависимости от модели видеомагнитофона. Для отмены паузы при записи:
– Выберите PAUSE, если кнопкой для отмены паузы при записи является ❚❚.
– Выберите REC, если кнопкой для отмены паузы при записи является ●.
– Выберите PB, если кнопкой для отмены паузы при записи является ►.

(2) Установка кода IR SETUP

① Поверните диск SEL/PUSH EXEC для выбора IR SETUP, а затем нажмите на диск.
② Поверните диск SEL/PUSH EXEC для выбора кода IR SETUP на видеомагнитофоне, а затем нажмите на диск.

Проверьте код в разделе "Информация о коде IR SETUP" (стр. 71).



About the IR SETUP code
The IR SETUP code is stored in the memory of your camcorder. Be sure to set the correct code depending on your VCR. The default setting is Code number 3.

Brand/ Фирма-изготовитель	IR SETUP code/ Код IR SETUP
Sony	1, 2, 3, 4, 5, 6
Aiwa	47, 53, 54
Akai	50, 62, 74
Alba	73
Amstrad	73
Baird	30, 36
Blaupunkt	11, 83
Bush	74
CGM	36, 47, 83
Clatronic	73
Daewoo	26
Ferguson	76, 83
Fisher	73
Funai	80
Goldstar	47
Goodmans	26, 84
Grundig	9, 83
Hitachi	42, 56
ITT/Nokia Instant	36
JVC	11, 12, 15, 21
Kendo	47
Loewe	16, 47, 84
Luxor	89
Mark	26*
Matsui	47, 58*, 60
Mitsubishi	28, 29

* TV/VCR component

Note on IR SETUP code
The Easy Dubbing is not possible if the VCR does not support IR SETUP codes.

Информация о коде IR SETUP
Код IR SETUP содержится в памяти видеокамеры. Установите правильный код, соответствующий используемому видеомагнитофону. Установкой по умолчанию является код номер 3.

Brand/ Фирма-изготовитель	IR SETUP code/ Код IR SETUP
Nokia	36, 89
Nokia Oceanic	89
Nordmende	76
Okano	60, 62, 63
Orion	58*, 70
Panasonic	16, 78
Philips	83, 84, 86
Phonola	83, 84
Roadstar	47
SABA	21, 76, 91
Salora	89
Samsung	22, 52, 93, 94, 32
Sanyo	36
Schneider	10, 84, 83
SEG	73
Seleco	47, 74
Sharp	89
Siemens	10, 36
Tandberg	26
Telefunken	91, 92
Thomson	76, 100
Thorn	36, 47
Toshiba	40, 93
Universum	47, 70, 92, 84
W.W. House	47
Watoson	58, 83

* ТВ/видеомагнитофон

Примечание относительно кода IR SETUP
Простая перезапись невозможна, если видеомагнитофон не поддерживает коды IR SETUP.

Dubbing a tape easily – Easy Dubbing

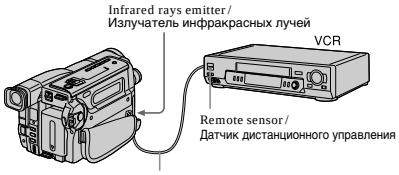
Простая перезапись ленты – Простая перезапись

(3) Setting your camcorder and the VCR to face each other

Locate the Infrared rays emitter of your camcorder and face it towards the remote sensor of the VCR.
Set the devices about 30 cm (12 in.) apart, and remove any obstacles between the devices.

(3) Установка видеокамеры и видеомагнитофона друг против друга

Инфракрасный излучатель видеокамеры необходимо направить на датчик дистанционного управления видеомагнитофона.
Установите устройства на расстоянии примерно 30 см и устраните любые препятствия между ними.



(4) Confirming the VCR operation

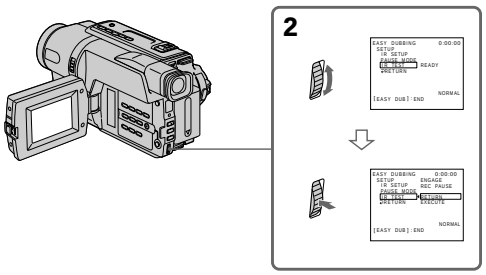
① Insert a recordable tape into the VCR, then set to recording pause.
② Turn the SEL / PUSH EXEC dial to select IR TEST, then press the dial.
③ Turn the SEL / PUSH EXEC dial to select EXECUTE, then press the dial.

If the VCR starts recording, the setting is correct. When finished, the indicator changes to COMPLETE.

(4) Подтверждение работы видеомагнитофона

① Вставьте кассету для записи в видеомагнитофон, затем установите режим паузы записи.
② Поверните диск SEL/PUSH EXEC для выбора IR TEST, а затем нажмите на диск.
③ Поверните диск SEL/PUSH EXEC для выбора установки EXECUTE, а затем нажмите на диск.

Если видеомагнитофон производит запись, это означает правильную настройку.
По окончании индикатор изменится на COMPLETE.



Dubbing a tape easily – Easy Dubbing

Простая перезапись ленты – Простая перезапись

When the VCR does not operate correctly

- After checking the code in "About the IR SETUP code," set IR SETUP or PAUSE MODE again.
- Place your camcorder at least 30 cm (12 in.) away from the VCR.
- Refer to the operating instructions of your VCR.

Если видеомагнитофон работает неправильно

- После проверки кода в разделе "Информация о коде IR SETUP" снова установите IR SETUP или PAUSE MODE.
- Установите видеокамеру на расстоянии не менее 30 см от видеомагнитофона.
- Обратитесь к инструкции по эксплуатации видеомагнитофона.

Step 3: Selecting the title

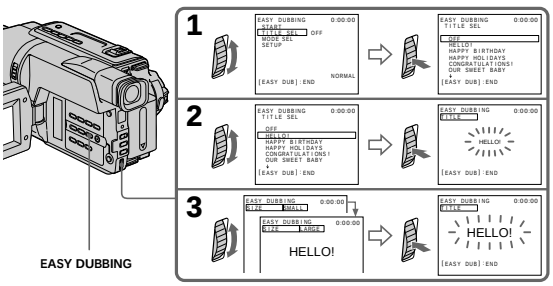
Пункт 3: Выбор титра

You can select title, colour, size, and background colour.
CUSTOM1 and CUSTOM2 are custom titles stored in your camcorder as instructed in "Making your own titles". (p.60)

(1) Press EASY DUBBING to display the menu.
(2) Turn the SEL / PUSH EXEC dial to select TITLE SEL, then press the dial.
(3) Select the desired title in the menu settings, then press the dial. The title is displayed.
(4) Change the colour, size, or background colour, if necessary.
① Turn the SEL / PUSH EXEC dial to select the colour, size, or background colour, then press the dial. The item appears.
② Turn the SEL / PUSH EXEC dial to select the desired item, then press the dial.
③ Repeat steps ① and ② until the title is laid out as desired.
④ Press the SEL / PUSH EXEC dial again to complete the setting.

Вы можете выбирать титр, цвет, размер и цвет фона.
CUSTOM1 и CUSTOM2 - это пользовательские титры, которые сохраняются в памяти видеокамеры, в соответствии с инструкциями в разделе "Создание Ваших собственных титров" (стр. 60).

(1) Нажмите кнопку EASY DUBBING для отображения меню.
(2) Поверните диск SEL/PUSH EXEC для выбора установки TITLE SEL, а затем нажмите на диск.
(3) Выберите требуемый титр в установках меню, затем нажмите на диск. Отобразится титр.
(4) Измените цвет, размер или цвет фона, если нужно.
① Поверните диск SEL/PUSH EXEC для выбора цвета, размера или цвета фона, а затем нажмите на диск. Появится элемент.
② Поверните диск SEL/PUSH EXEC для выбора нужного элемента, а затем нажмите на диск.
③ Повторяйте пункты ① и ② до тех пор, пока титр не будет настроен так, как нужно.
④ Нажмите на диск SEL/PUSH EXEC для завершения установки.



EASY DUBBING

Dubbing a tape easily – Easy Dubbing

Простая перезапись ленты – Простая перезапись

Note
You can put a title only into the tape of the VCR.

Title setting

- The title colour changes as follows: WHITE ↔ YELLOW ↔ VIOLET ↔ RED ↔ CYAN ↔ GREEN ↔ BLUE
- The title size changes as follows: SMALL ↔ LARGE
- The background colour changes as follows: FADE ↔ WHITE ↔ YELLOW ↔ VIOLET ↔ RED ↔ CYAN ↔ GREEN ↔ BLUE ↔ BLACK

Примечание
Можно вставить титр только в ленту, находящуюся в видеомагнитофоне.

Установка титра

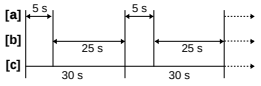
- Цвет титра изменяется следующим образом: WHITE (БЕЛЫЙ) ↔ YELLOW (ЖЕЛТЫЙ) ↔ VIOLET (ФИОЛЕТОВЫЙ) ↔ RED (КРАСНЫЙ) ↔ CYAN (ГОЛУБОЙ) ↔ GREEN (ЗЕЛЕНЫЙ) ↔ BLUE (СИНИЙ)
- Размер титра изменяется следующим образом: SMALL (МАЛЕНЬКИЙ) ↔ LARGE (БОЛЬШОЙ)
- Цвет фона изменяется следующим образом: FADE (БЕСЦВЕТНЫЙ) ↔ WHITE (БЕЛЫЙ) ↔ YELLOW (ЖЕЛТЫЙ) ↔ VIOLET (ФИОЛЕТОВЫЙ) ↔ RED (КРАСНЫЙ) ↔ CYAN (ГОЛУБОЙ) ↔ GREEN (ЗЕЛЕНЫЙ) ↔ BLUE (СИНИЙ) ↔ BLACK (ЧЕРНЫЙ)

Step 4: Selecting the dubbing mode

Пункт 4: Выбор режима перезаписи

You can choose either normal recording (NORMAL) or interval recording (PREVIEW).
(1) Turn the SEL / PUSH EXEC dial to select MODE SEL, then press the dial.
(2) Turn the SEL / PUSH EXEC dial to select the mode to dub, then press the dial.
– NORMAL: you can record into the VCR normally.
– PREVIEW: you can make a time-lapse dubbing by setting the camcorder to automatically playback and standby sequentially.

Можно выбрать как обычную запись (NORMAL), так и запись с интервалами (PREVIEW).
(1) Поверните диск SEL/PUSH EXEC для выбора установки MODE SEL, а затем нажмите на диск.
(2) Поверните диск SEL/PUSH EXEC, чтобы выбрать режим для перезаписи, а затем нажмите на диск.
– NORMAL: записывать на видеомагнитофон можно обычным способом.
– PREVIEW: Можно выполнить цейтраферную перезапись, настроив видеокамеру таким образом, чтобы она последовательно выполняла воспроизведение и переходила в режим ожидания.



[a]: Recording (VCR)
[b]: Waiting time (VCR)
[c]: Playback time (camcorder)

[a]: Запись (видеомагнитофон)
[b]: Время ожидания (видеомагнитофон)
[c]: Время воспроизведения (видеокамера)

Dubbing a tape easily – Easy Dubbing

Простая перезапись ленты – Простая перезапись

Step 5: Performing Easy Dubbing

Пункт 5: Выполнение простой перезаписи

Make sure that your camcorder and VCR are connected, and that the VCR is set to recording pause.
When you use a video camera recorder, set its POWER switch to VTR / VCR. Set the POWER switch of your camcorder to PLAYER.
(1) Turn the SEL / PUSH EXEC dial to select START, then press the dial.
(2) Turn the SEL / PUSH EXEC dial to select EXECUTE, then press the dial.
When dubbing ends, your camcorder and VCR stop automatically.

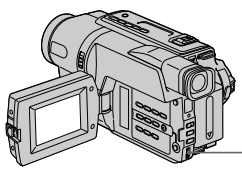
To stop dubbing during editing
Press ■ on your camcorder.

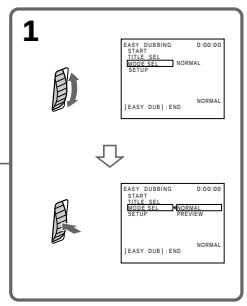
To quit the Easy Dubbing function
Your camcorder stops when dubbing is complete. Then the display returns to START in the menu settings.
Press EASY DUBBING to quit the Easy Dubbing function.

Убедитесь, что видеокамера подключена к видеомагнитофону, а видеомагнитофон включен в режим паузы при записи.
При использовании видеокамеры установите ее переключатель POWER в положение VTR/VCR. Установите переключатель POWER на Вашей видеокамере в положение PLAYER.
(1) Поверните диск SEL/PUSH EXEC для выбора START, а затем нажмите на диск.
(2) Поверните диск SEL/PUSH EXEC для выбора установки EXECUTE, а затем нажмите на диск.
Когда заканчивается перезапись, видеокамера и видеомагнитофон автоматически останавливаются.

Для остановки перезаписи во время монтажа
Нажмите кнопку ■ на видеокамере.

Для выключения функции простой перезаписи
Видеокамера останавливается после завершения перезаписи. Затем на дисплее появляется START в установках меню. Нажмите EASY DUBBING для выключения функции простой перезаписи.





Dubbing a tape easily – Easy Dubbing

You cannot record on the VCR when:
– The tape has run out.
– The write-protect tab is set to expose the red mark.
– The IR SETUP code is not correct.
– The button used to cancel recording pause is not correct.

NOT READY appears on the screen when:
START is not carried out.

Простая перезапись ленты – Простая перезапись

На видеомагнитофон не удастся произвести запись, если:
– Закончилась лента.
– Лепесток защиты от записи установлен так, что видна красная метка.
– Неправильный код IR SETUP
– Кнопка для отмены паузы при записи является неверной.

Индикация NOT READY появляется на экране, если:
Функция START не выполнена.

Changing the menu settings

To change the mode settings in the menu settings, select the menu items with the SEL / PUSH EXEC dial. The default settings can be partially changed. First, select the icon, then the menu item and then the mode.
(1) In CAMERA or PLAYER mode, press MENU.
(2) Turn the SEL / PUSH EXEC dial to select the desired icon, then press the dial to set.
(3) Turn the SEL / PUSH EXEC dial to select the desired item, then press the dial to set.
(4) Turn the SEL / PUSH EXEC dial to select the desired mode, and press the dial to set.
(5) If you want to change other items, select ↩ RETURN and press the dial, then repeat steps from 2 to 4.

For details, see “Selecting the mode setting of each item” (p. 79).

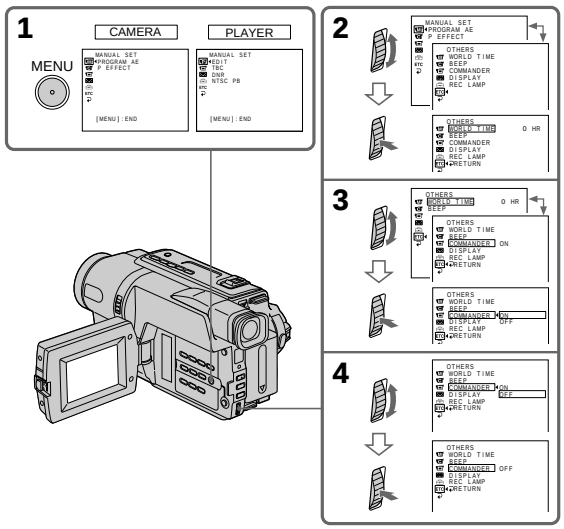
Изменение установок меню

Для изменения установок режима в установках меню выберите пункты меню с помощью диска SEL/PUSH EXEC. Установки по умолчанию можно частично изменить. Сначала выберите пиктограмму, затем пункт меню, а затем режим.
(1) В режиме CAMERA или PLAYER нажмите кнопку MENU.
(2) Поверните диск SEL/PUSH EXEC для выбора нужной пиктограммы, а затем нажмите диск для выполнения установки.
(3) Поверните диск SEL/PUSH EXEC для выбора нужного элемента, а затем нажмите диск для выполнения установки.
(4) Поверните диск SEL/PUSH EXEC для выбора нужного режима, а затем нажмите диск для выполнения установки.
(5) Если Вы хотите изменить другие пункты, выберите команду ↩ RETURN, а затем нажмите диск, после чего повторите действия пунктов 2–4.

Подробные сведения приведены в разделе “Выбор установок режима каждого элемента” (стр. 84).

Changing the menu settings

Изменение установок меню



To make the menu display disappear
Press MENU.

Для того, чтобы исчезла индикация меню
Нажмите кнопку MENU.

Changing the menu settings

Menu items are displayed as the following icons:
- MANUAL SET
- CAMERA SET
- PLAYER SET
- LCD / VF SET
- TAPE SET
- SETUP MENU
- OTHERS

Depending on your camcorder model
The menu display may be different from that in this illustration.

English

Изменение установок меню

Пункты меню отображаются в виде приведенных ниже пиктограмм:
- MANUAL SET
- CAMERA SET
- PLAYER SET
- LCD/VF SET
- TAPE SET
- SETUP MENU
- OTHERS

В зависимости от модели видеокамеры
Отображение элементов меню может не совпадать с тем, что приведено на этой иллюстрации.

Selecting the mode setting of each item

● is the default setting.

Menu items differ according to the position of the POWER switch.
The screen shows only the items you can operate at the moment.

Icon/item	Mode	Meaning	POWER switch
PROGRAM AE	——	To suit your specific shooting requirement. (p. 51)	CAMERA
P EFFECT	——	To add special effects like those in films or on the TV to images. (p. 49)	CAMERA
D ZOOM	● OFF	If you set to OFF, digital zoom is deactivated and up to 20× is carried out.	CAMERA
	40× 560×	If you set to 40×/560×, digital zoom is activated and more than 20× to 40×/560× is performed digitally. (p. 30) (CCD-TRV208E/TRV408E only)	
	● OFF	If you set to OFF, digital zoom is deactivated and up to 20× is carried out.	
	40× 460×	If you set to 40×/460×, digital zoom is activated and more than 20× to 40×/460× is performed digitally. (p. 30) (CCD-TRV108E only)	
	● OFF	If you set to OFF, digital zoom is deactivated and up to 20× is carried out.	
	40× 450×	If you set to 40×/450×, digital zoom is activated and more than 20× to 40×/450× is performed digitally. (p. 30) (CCD-TRV107E only)	
16:9WIDE	● OFF	—	CAMERA
	CINEMA	To record in the CINEMA mode. (p. 44)	
	16:9FULL	To record in the 16:9FULL mode.	
STEADYSHOT*	● ON	To compensate for camera-shake.	CAMERA
	OFF	To cancel the SteadyShot function. Natural pictures are produced when shooting a stationary object with a tripod.	
N.S. LIGHT	● ON	To use the NightShot Light function. (p. 34)	CAMERA
	OFF	To cancel the NightShot Light function.	

Changing the menu settings

Notes on the SteadyShot function*
- The SteadyShot function will not correct excessive camera-shake.
- Attachment of a conversion lens (optional) may influence the SteadyShot function.
- SteadyShot does not operate in the 16:9FULL mode. If you set STEADYSHOT to ON in the menu settings, the "✋" indicator flashes.

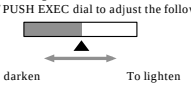
If you cancel the SteadyShot function*
The SteadyShot off indicator appears. Your camcorder prevents excessive compensation for camera-shake.

* CCD-TRV408E only

Icon/item	Mode	Meaning	POWER switch
EDIT	● OFF	—	PLAYER
	ON	To minimise picture deterioration when editing.	
TBC	● ON	To correct jitter.	PLAYER
	OFF	To not correct jitter. Set TBC to OFF when playing back a tape on which you have dubbed over and recorded the signal of a TV game or similar machine.	
TBC stands for "Time Base Corrector."			
DNR	● ON	To reduce picture noise.	PLAYER
	OFF	To reduce a conspicuous afterimage when the picture has a lot of movement.	
DNR stands for "Digital Noise Reduction."			
NTSC PB	● ON PAL TV	To play back a tape recorded in the NTSC colour system on a PAL system TV.	PLAYER
	NTSC 4.43	To play back a tape recorded in the NTSC colour system on a TV with the NTSC 4.43 mode.	

Note on NTSC PB
When you play back a tape on a Multi system TV, select the best mode while viewing the picture on the TV.

In more than 5 minutes after removing the power source
The "EDIT" item is returned to their default settings. The other items are held in memory even when the battery is removed.

Icon/item	Mode	Meaning	POWER switch
LCD BRIGHT	——	To adjust the brightness on the LCD screen with the SEL / PUSH EXEC dial to adjust the following bar.  To darken To lighten	PLAYER CAMERA
LCD B.L.	● BRT NORMAL	To set the brightness on the LCD screen normal.	PLAYER CAMERA
	BRIGHT	To brighten the LCD screen.	

Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
LCD COLOUR	——	To adjust the colour on the LCD screen, turn the SEL / PUSH EXEC dial to adjust the following bar. To reduce intensity To increase intensity	PLAYER CAMERA
VF B.L.	● BRT NORMAL	To set the brightness in the viewfinder normal.	PLAYER CAMERA
	BRIGHT	To brighten the viewfinder.	

Notes on VF B.L. and LCD B.L.
- When you select BRIGHT, battery life is reduced by about 10 percent during recording.
- When you use power sources other than the battery pack, BRIGHT is automatically selected.

Icon/item	Mode	Meaning	POWER switch
REC MODE	● SP	To record in the SP (Standard Play) mode.	CAMERA
	LP	To increase the recording time to twice the SP mode.	
ORC TO SET	——	To automatically adjust the recording condition to get the best possible recording. Press START / STOP to start adjustment. Your camcorder takes about 10 seconds to check the tape condition and then returns to the standby mode.	CAMERA
ORC stands for "Optimising the Recording Condition."			
REMAIN	● AUTO	To display the remaining tape bar: – for about 8 seconds after your camcorder is turned on and calculates the remaining amount of tape. – for about 8 seconds after a cassette is inserted and your camcorder calculates the remaining amount of tape. – for about 8 seconds after ► is pressed in PLAYER mode. – for about 8 seconds after DISPLAY is pressed to display the screen indicators. – for the period of tape rewinding, forwarding or picture search in PLAYER mode.	PLAYER CAMERA
	ON	To always display the remaining tape bar.	

Notes on the LP mode
- When you record a tape in the LP mode on your camcorder, we recommend playing back the tape on your camcorder. When you play back the tape on other camcorders or VCRs, noise may occur in images or sound.
- When you record in the LP mode, we recommend using a Sony video cassette so that you can get the most out of your camcorder.
- When you record in both the SP and LP modes on one tape, or you record some scenes in the LP mode, the playback image may be distorted.
- Noise may occur also when you play back on your camcorder tapes recorded in the LP mode on other camcorders or VCRs.
- When you record a tape in the LP mode on your camcorder, recording is carried out in the standard 8 mm system.

Changing the menu settings

Notes on ORC setting
- Each time you eject the cassette, the ORC setting will be cancelled. If necessary, set the setting.
- You cannot use this setting on a tape with the red mark on the cassette exposed. (i. e. the tape is write-protected)
- When you set ORC TO SET, a non-recorded section of about 0.1 second appears on the tape. However, note that this non-recorded section disappears from the tape when you continue recording from this section.
- To check if you have already set the ORC setting, select ORC TO SET in the menu settings. "ORC ON" is displayed if ORC TO SET is already set.

Icon/item	Mode	Meaning	POWER switch
CLOCK SET	——	To set the date or time. (p. 22)	CAMERA
AUTO DATE	● ON	To record the date for 10 seconds after recording has started.	CAMERA
	OFF	To cancel the auto date function.	
LTR SIZE	● NORMAL	To display selected menu items in normal size.	PLAYER CAMERA
	2×	To display selected menu items at twice the normal size.	
LANGUAGE	● ENGLISH	To display the following information indicators in English: min, STBY, REC, VOL, END SEARCH, and START.	PLAYER CAMERA
	FRANÇAIS*1)	To display the information indicators in French.	
	ESPAÑOL*1)	To display the information indicators in Spanish.	
	PORTUGUÊS*1)	To display the information indicators in Portuguese.	
	DEUTSCH*1)	To display the information indicators in German.	
	ITALIANO*1)	To display the information indicators in Italian.	
	中文[COMP]*2)	To display the information indicators in Chinese (traditional).	
	中文[SIMP]*2)	To display the information indicators in Chinese (simplified).	
	ΕΛΛΗΝΙΚΑ*1)	To display the information indicators in Greek.	
DEMO MODE	● ON	To make the demonstration appear.	CAMERA
	OFF	To cancel the demonstration mode.	

Notes on DEMO MODE
- You cannot select DEMO MODE when a cassette is inserted in your camcorder.
- DEMO MODE is set to STBY (Standby) at the factory and the demonstration starts about 10 minutes after you have set the POWER switch to CAMERA without a cassette inserted. To cancel the demonstration, insert a cassette, set the POWER switch to other than CAMERA, or set DEMO MODE to OFF.
- When NIGHTSHOT is set to ON, "NIGHTSHOT" indicator appears on the screen and you cannot select DEMO MODE in the menu settings.

*1) European models only
*2) Except for european models

Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
WORLD TIME	——	To set the clock to the local time. Turn the SEL / PUSH EXEC dial to set the time difference. The clock changes by the time difference you set here. If you set the time difference to 0, the clock returns to the originally set time.	CAMERA
BEEP	● MELODY	To output the melody when you start / stop recording or when an unusual condition occurs on your camcorder.	PLAYER CAMERA
	NORMAL	To output the beep instead of the melody.	
	OFF	To cancel the melody and beep sound.	
COMMANDER*	● ON	To activate the Remote Commander supplied with your camcorder.	PLAYER CAMERA
	OFF	To deactivate the Remote Commander to avoid unintentional operations caused by other VCR's remote control.	
DISPLAY	● LCD	To show the display on the LCD screen and in the viewfinder.	PLAYER CAMERA
	V-OUT / LCD	To show the display on the TV screen, LCD screen, and in the viewfinder.	
REC LAMP	● ON	To light up the recording lamp at the front of your camcorder when recording.	CAMERA
	OFF	To turn the recording lamp off so that the subject is not aware of the recording.	

In more than 5 minutes after removing the power source
The "COMMANDER"* item is returned to the default setting.
The other menu items are held in memory even when the battery is removed.

Recording a close-up picture
When REC LAMP is set to ON, the red recording lamp on the front of the camcorder may reflect on the subject if it is close. In this case, we recommend you set REC LAMP to OFF.

* CCD-TRV107E / TRV208E / TRV408E only

English

Types of trouble and their solutions

If you run into any problem using your camcorder, use the following table to troubleshoot the problem. If the problem persists, disconnect the power source and contact your Sony dealer or local authorised Sony service facility. If "C:□□:□□" appears on the screen, the self-diagnosis display function has worked. See page 93.

In the recording mode

Symptom	Cause and/or Corrective Actions
START/STOP does not operate.	• The POWER switch is set to OFF (CHG) or PLAYER. → Set it to CAMERA. (p. 26) • The tape has run out. → Rewind the tape or insert a new one. (p. 24, 38) • The write-protect tab is set to expose the red mark. → Use a new tape or slide the tab. (p. 25) • The tape is stuck to the drum (moisture condensation). → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 108)
The power goes off.	• While being operated in CAMERA mode, your camcorder has been in the standby mode for more than 5 minutes. → Set the POWER switch to OFF (CHG) and then to CAMERA again. (p. 26) • The battery pack is dead or nearly dead. → Install a fully charged battery pack. (p. 15, 16)
The image on the viewfinder screen is not clear.	• The viewfinder lens is not adjusted. → Adjust the viewfinder lens. (p. 31)
The SteadyShot function does not work.*	• STEADYSHOT is set to OFF in the menu settings. → Set it to ON. (p. 79) • The wide mode is set to 16:9FULL. → Set it to OFF. (p. 79)
The autofocusing function does not work.	• The setting is the manual focus mode. → Press FOCUS to return to the autofocus mode. (p. 55) • Shooting conditions are not suitable for autofocus. → Adjust to focus manually. (p. 55)
The ⊗ indicator flashes in the viewfinder.	• The video heads may be dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (optional). (p. 109)
The picture does not appear in the viewfinder.	• The LCD panel is open. → Close the LCD panel. (p. 28)
A vertical band appears when you shoot a subject such as lights or a candle flame against a dark background.	• The contrast between the subject and background is too high. This is not a malfunction.

(Continued on the following page)

Symptom	Cause and/or Corrective Actions
A vertical band appears when you shoot a very bright subject.	• This is not a malfunction.
An unknown picture is displayed on the screen.	• If 10 minutes elapse after you set the POWER switch to CAMERA or DEMO MODE is set to ON in the menu settings without a cassette inserted, your camcorder automatically starts the demonstration. → Insert a cassette and the demonstration stops. You can also cancel DEMO MODE. (p. 82)
The picture is recorded in incorrect or unnatural colours.	• NIGHTSHOT is set to ON. → Set it to OFF. (p. 34)
The picture appears too bright, and the subject does not appear on the screen.	• NIGHTSHOT is set to ON in a bright place. → Set it to OFF or use the NightShot function in a dark place. (p. 34) • The backlight function is working. → Cancel it. (p. 33)
A horizontal black band appears when shooting a TV screen or computer screen.*	• Set STEADYSHOT to OFF in the menu setting. (P. 79)

* CCD-TRV408E only

In the playback mode

Symptom	Cause and/or Corrective Actions
The tape does not move when a video control button is pressed.	• The POWER switch is set to CAMERA or OFF (CHG). → Set it to PLAYER. (p. 38)
The playback button does not work.	• The tape has run out. → Rewind the tape. (p. 38)
The playback picture is not clear or does not appear.	• The television's video programme position is not adjusted correctly. → Adjust it. (p. 42) • EDIT is set to ON in the menu settings. → Set it to OFF. (p. 80) • The video head may be dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (optional). (p. 109)
No sound or only a low sound is heard when playing back a tape.	• The volume is turned to minimum. → Open the LCD panel and press VOLUME +. (p. 38)

In the recording and playback modes

Symptom	Cause and/or Corrective Actions
The power does not turn on.	• The battery pack is not installed, or is dead or nearly dead. → Install a charged battery pack. (p. 15, 16) • The AC power adaptor is not connected to a wall socket. → Connect the AC power adaptor to a wall socket. (p. 20)
The end search function does not work.	• The tape was ejected after recording. • You have not recorded on the cassette yet.
The battery pack discharges quickly.	• The operating temperature is too low. • The battery pack is not fully charged. → Charge the battery pack fully again. (p. 15, 16) • The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack. (p. 15)
The remaining battery time indicator does not indicate the correct time.	• You have used the battery pack in an extremely hot or cold environment for a long time. • The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack. (p. 15) • The battery pack is not fully charged. • A deviation has occurred in the remaining battery time. → Charge the battery pack fully again. (p. 15, 16)
The power goes off although the remaining battery time indicator indicates that the battery pack has enough power to operate.	• A deviation has occurred in the remaining battery time. → Charge the battery pack fully again so that the indication on the battery remaining indicator is correct. (p. 15, 16)
The cassette cannot be removed from the holder.	• The power source is disconnected. → Connect it firmly. (p. 15, 20) • The battery pack is dead. → Use a charged battery pack. (p. 15, 16)
The ⊡ and ⏏ indicators flash and no functions except for cassette ejection work.	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 108)
The remaining tape indicator is not displayed.	• The REMAIN is set to AUTO in the menu settings. → Set it to ON to always display the remaining tape indicator.

(Continued on the following page)

Others

Symptom	Cause and/or Corrective Actions
Easy Dubbing does not function.	• Your VCR and/or video camera recorder is not set correctly. → Make sure the input selector of the VCR is set to LINE. Also, make sure the power switch of the video camera is set to VTR/VCR. (p. 68) • The IR SETUP code or PAUSE MODE is not set correctly. → Select the correct IR SETUP code and PAUSE MODE, according to your VCR. Then confirm VCR operation with the IR TEST function. (p. 69 to 73)
The Remote Commander supplied with your camcorder does not work.*	• COMMANDER is set to OFF in the menu settings. → Set it to ON. (p. 83) • Something is blocking the infrared rays. → Remove the obstacle. • The batteries are inserted in the battery holder with the + – polarities incorrectly matching the + – marks. → Insert the batteries with the correct polarity. (p. 125) • The batteries are dead. → Insert new ones. (p. 125)
The date or time indicator does not appear, and the bars "--:--:--" appear.	• Set the date and time. (p. 22)
The melody or beep sounds for 5 seconds.	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 108) • Some troubles have occurred in your camcorder. → Remove the cassette and insert it again, then operate your camcorder.
No function works though the power is on.	• Disconnect the mains lead of the AC power adaptor or remove the battery pack, then reconnect it after about 1 minute. Turn the power on (p. 20, 26). If the functions still do not work, press RESET using a sharp-pointed object. (If you press RESET, all the settings including the date and time return to the default.) (p. 123)
While charging the battery pack, no indicator appears or the indicator flashes in the display window.	• The AC power adaptor is disconnected. → Connect it firmly. (p. 20) • The battery pack is not installed. → Install it properly. (p. 15) • Something is wrong with the battery pack. → Contact your Sony dealer or local authorised Sony service facility.
You cannot charge the battery pack installed to your camcorder.	• The POWER switch is not set to OFF (CHG). → Set it to OFF (CHG).

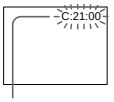
* CCD-TRV107E/TRV208E/TRV408E only

English

Self-diagnosis display

Your camcorder has a self-diagnosis display function.
This function displays the current condition of your camcorder as a 5-digit code (a combination of a letter and figures) on the LCD screen, in the viewfinder or in the display window.
If a 5-digit code is displayed, check the following code chart. The last two digits (indicated by □□) will differ depending on the state of your camcorder.

LCD screen, viewfinder or display window



Self-diagnosis display

- C:□□:□□
  You can service your camcorder yourself.
- E:□□:□□
  Contact your Sony dealer or local authorised Sony service facility.

Five-digit display	Cause and/or Corrective Actions
C:04:□□	• You are using a battery pack that is not an "InfoLITHIUM" battery pack. → Use an "InfoLITHIUM" battery pack. (p. 105)
C:21:□□	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 108)
C:22:□□	• The video heads are dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (optional). (p. 109)
C:31:□□ C:32:□□	• A malfunction other than the above that you can service has occurred. → Remove the cassette and insert it again, then operate your camcorder. → Disconnect the mains lead of the AC power adaptor or remove the battery pack. After reconnecting the power source, operate your camcorder.
E:20:□□ E:61:□□ E:62:□□	• A malfunction that you cannot service has occurred. → Contact your Sony dealer or local authorised Sony service facility and inform them of the 5-digit code. (example: E:61:10)

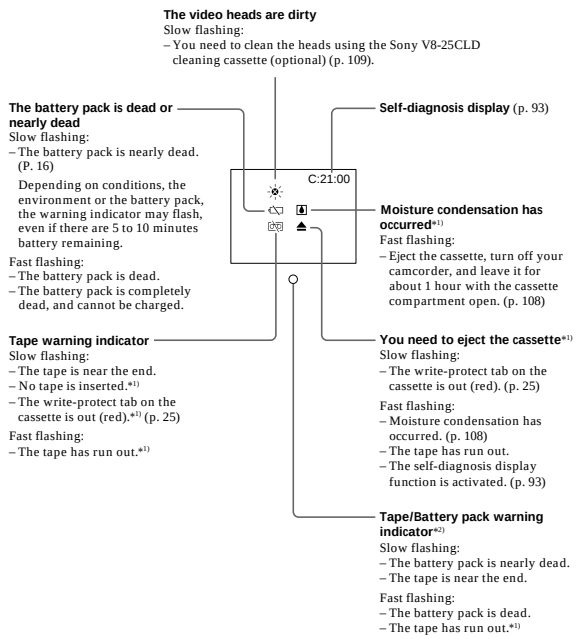
If you are unable to rectify the problem even if you try corrective actions a few times, contact your Sony dealer or local authorised Sony service facility.

English

Warning indicators and messages

If indicators and messages appear on the screen or in the display window, check the following:
See the page in parentheses "( )" for more information.

Warning indicators


The video heads are dirty
Slow flashing:
– You need to clean the heads using the Sony V8-25CLD cleaning cassette (optional) (p. 109).
The battery pack is dead or nearly dead
Slow flashing:
– The battery pack is nearly dead. (P. 16)
Depending on conditions, the environment or the battery pack, the warning indicator may flash, even if there are 5 to 10 minutes battery remaining.
Fast flashing:
– The battery pack is dead.
– The battery pack is completely dead, and cannot be charged.
Self-diagnosis display (p. 93)
C:21:00
Moisture condensation has occurred*1)
Fast flashing:
– Eject the cassette, turn off your camcorder, and leave it for about 1 hour with the cassette compartment open. (p. 108)
Tape warning indicator
Slow flashing:
– The tape is near the end.
– No tape is inserted.*1)
– The write-protect tab on the cassette is out (red).*2) (p. 25)
Fast flashing:
– The tape has run out.*1)
You need to eject the cassette*1)
Slow flashing:
– The write-protect tab on the cassette is out (red). (p. 25)
Fast flashing:
– Moisture condensation has occurred. (p. 108)
– The tape has run out.
– The self-diagnosis display function is activated. (p. 93)
Tape/Battery pack warning indicator*2)
Slow flashing:
– The battery pack is nearly dead.
– The tape is near the end.
Fast flashing:
– The battery pack is dead.
– The tape has run out.*1)

*1) You hear the melody or beep sound.
*2) This indicator appears in the viewfinder only.

Warning indicators and messages

Warning messages

• CLOCK SET	Set the date and time. (p. 22)
• FOR "InfoLITHIUM" BATTERY ONLY	Use an "InfoLITHIUM" battery pack. (p. 105)
• NO TAPE*1)	Insert a cassette tape.
• TAPE END*1)	The tape has reached the end.
• CLEANING CASSETTE*2)	The video heads are dirty. (p. 109)
• START/STOP KEY	Press START/STOP to activate the ORC setting. This message is displayed in white. (p. 81)
• ORC	The ORC setting is working. This message is displayed in white. (p. 81)

*1) You hear the melody or beep sound.
*2) The ⊗ indicator and "CLEANING CASSETTE" message appear one after another on the screen.

— Additional Information —

About video cassettes

Selecting the cassette type

You can use both Hi8 Hi8 and standard 8 mm 8 video cassettes on your camcorder. When you use a Hi8 Hi8 video cassette, recording and playback are carried out in the Hi8 Hi8 system. When you use a standard 8 mm 8 video cassette, recording and playback are carried out in the standard 8 mm 8 system.
If you play back a tape recorded on a different video recorder on your camcorder, the playback mode is automatically selected according to the format in which the tape has been recorded.

This Hi8 Hi8 system is an extension of the standard 8 mm 8 system, and was developed to produce higher quality pictures.
You cannot play back a tape recorded in the Hi8 Hi8 system correctly on video recorders/players other than a Hi8 video recorder/player.

8 is a trademark.
Hi8 is a trademark.

When you play back

The playback mode (SP/LP) and system, Hi8 Hi8, or standard 8 mm 8 are automatically selected according to the format in which the tape has been recorded. The quality of the recorded picture in the LP mode, however, will not be as good as the SP mode.

Foreign 8 mm video

Because TV colour systems differ from country to country, you may not be able to play back foreign pre-recorded tapes. Refer to "Using your camcorder abroad" (p. 107) to check the TV colour systems used in foreign countries.

— Дополнительная информация —

О видеокассетах

Выбор типа кассеты

На Вашей видеокамере можно использовать как видеокассеты Hi8 Hi8, так и стандартные видеокассеты 8 мм 8. При использовании видеокассеты Hi8 Hi8 запись и воспроизведение выполняются в системе Hi8 Hi8. При использовании стандартной видеокассеты 8 мм 8 запись и воспроизведение выполняются в стандартной системе 8 мм 8.
Если Вы будете воспроизводить на Вашей видеокамере ленту, записанную на разных видеомагнитофонах, то режим воспроизведения будет выбираться автоматически в соответствии с форматом, в котором была записана лента.

Система Hi8 Hi8 является модификацией стандартной 8 мм 8 системы и была разработана для получения высококачественных изображений.
Вы не сможете воспроизвести надлежащим образом ленту, записанную в системе Hi8 Hi8, на видеомагнитофоне/плеере, который не является видеомагнитофоном/плеером с системой Hi8.

8 является торговой маркой.
Hi8 является торговой маркой.

При выполнении воспроизведения

Режим воспроизведения (SP/LP) и система Hi8 Hi8/стандартная 8 мм 8 выбираются автоматически в соответствии с форматом, в котором была выполнена запись на ленте. Однако качество записанного изображения в режиме LP не будет таким хорошим, как в режиме SP.

Иностранные 8 мм видеоленты

Поскольку системы цветного телевидения могут быть различными в разных странах, возможно, Вы не сможете воспроизводить иностранные предварительно записанные ленты. См. раздел "Использование Вашей видеокамеры за границей" (стр. 107) для проверки систем цветного телевидения, используемых в других странах.

About video cassettes

Playing back an NTSC-recorded tape

You can play back tapes recorded in the NTSC video system using the SP mode.
However, note that the following will occur during playback of an NTSC-recorded tape.

- When playing back a tape on a TV screen, you may not get the original colour depending on the TV. When you play back on a Multi System TV, set NTSC PB to the desired mode in the menu settings.
- During playback, a black band appears on the lower part of the viewfinder.
- You cannot play back a tape recorded in the NTSC video system with the LP mode neither on the LCD nor on a TV screen.
- If a tape has portions recorded in PAL and NTSC video systems, the tape counter reading is not correct. This discrepancy is due to the difference between the counting cycle of the two video systems.
- You cannot edit the NTSC-recorded tape onto another VCR.

О видеокассетах

Воспроизведение лент, записанных в системе NTSC

Вы можете воспроизводить ленты, записанные в системе NTSC, используя режим SP.
Однако следует помнить, что во время воспроизведения лент, записанных в системе NTSC, будет иметь место следующее.

- При воспроизведении ленты на экране телевизора Вы можете не получить первоначальные цвета в зависимости от типа телевизора. При воспроизведении на мультисистемном телевизоре установите переключатель NTSC PB на нужный режим в установках меню.
- Во время воспроизведения в нижней части видоискателя будет появляться черная полоса.
- Вы не можете воспроизводить ленту, записанную в видеосистеме NTSC в режиме LP, ни на экране ЖКД, ни на экране телевизора.
- Если на ленте имеются участки, записанные в видеосистемах PAL и NTSC, то функционирование счетчика ленты будет неправильным. Это расхождение объясняется разницей между счетными циклами двух видеосистем.
- Вы не можете выполнять монтаж ленты, записанной в системе NTSC, на другой видеомагнитофон.

About the “InfoLITHIUM” battery pack

What is the “InfoLITHIUM” battery pack?

The “InfoLITHIUM” battery pack is a lithium-ion battery pack that has functions for communicating information related to operating conditions between your camcorder and the AC power adaptor.
The “InfoLITHIUM” battery pack calculates the power consumption according to the operating conditions of your camcorder, and displays the remaining battery time in minutes.

Charging the battery pack

- Be sure to charge the battery pack before you start using your camcorder.
- We recommend charging the battery pack in an ambient temperature of between 10°C to 30°C (50°F to 86°F) until FULL appears indicating that the battery pack is fully charged, in the display window. If you charge the battery pack outside of this temperature range, you may not be able to efficiently charge the battery pack.
- After charging is completed, either disconnect the cable from the DC IN jack on your camcorder or remove the battery pack.

Effective use of the battery pack

- Battery performance decreases in low-temperature surroundings. So, the time that the battery pack can be used is shorter in cold places. We recommend the following to use the battery pack longer:
  – Put the battery pack in a pocket to warm it up, and insert it in your camcorder immediately before you start taking shots.
  – Use a large capacity battery pack (NP-FM50/FM70/QM71/FM90/FM91/QM91, optional).
- Frequently using the LCD panel or frequently operating playback, fast forward or rewind wears out the battery pack faster. We recommend using a large capacity battery pack (NP-FM50/FM70/QM71/FM90/FM91/QM91, optional).
- Be certain to turn the POWER switch to OFF (CHG) when not taking shots or playing back on your camcorder. Battery pack power is also consumed when your camcorder is in the standby mode or playback is paused.

О батарейном блоке “InfoLITHIUM”

Что такое батарейный блок “InfoLITHIUM”?

“InfoLITHIUM” представляет собой литиево-ионный батарейный блок, который оснащен функцией обмена данными, связанными с условиями работы, между Вашей видеокамерой и адаптером питания переменного тока. Батарейный блок “InfoLITHIUM” вычисляет потребление энергии в зависимости от условий работы Вашей видеокамеры и отображает оставшееся время работы батарейного блока в минутах.

Зарядка батарейного блока

- Перед началом использования видеокамеры удостоверьтесь, что батарейный блок заряжен.
- Рекомендуется выполнять зарядку батарейного блока при температуре окружающей среды от 10°C до 30°C, пока в окошке дисплея не появится индикатор FULL, означающий, что батарейный блок заряжен полностью. При зарядке батарейного блока при температуре, выходящей за пределы указанного интервала, Вам, возможно, не удастся зарядить батарейный блок надлежащим образом.
- После завершения зарядки либо отсоедините кабель от гнезда DC IN Вашей видеокамеры, либо снимите батарейный блок.

Эффективное использование батарейного блока

- Производительность батареи снижается в условиях низких температур. Поэтому в холодных местах время, в течение которого можно пользоваться батарейным блоком, меньше. Для продолжительного использования рекомендуется следующее:
  – Чтобы согреть батарейный блок, положите его в карман и подсоедините его к видеокамере непосредственно перед началом съемки.
  – Используйте батарейный блок большой ёмкости (NP-FM50/FM70/QM71/FM90/FM91/QM91, приобретается отдельно).
- Частое использование панели ЖКД или частое применение воспроизведения, ускоренной перемотки вперед или назад быстрее разряжает батарейный блок. Рекомендуется использовать батарейный блок большой ёмкости (NP-FM50/FM70/QM71/FM90/FM91/QM91, приобретается отдельно).
- Обязательно устанавливайте переключатель POWER в положение OFF (CHG), когда Вы не производите съемку и не выполняете воспроизведение на Вашей видеокамере. Батарейный блок разряжается, если видеокамера находится в режиме ожидания, или установлена пауза воспроизведения.

About the “InfoLITHIUM” battery pack

- Have spare battery packs handy for two or three times the expected recording time, and make a trial recording before the actual recording.
- Do not expose the battery pack to water. The battery pack is not water-resistant.

Remaining battery time indicator

- If the power goes off although the remaining battery time indicator indicates that the battery pack has enough power to operate, charge the battery pack fully again so that the indication on the remaining battery time indicator is correct. Note, however, that the correct battery indication sometimes will not be restored if it is used in high temperatures for a long time or left in a fully charged state, or the battery pack is frequently used. Regard the remaining battery time indication as approximate.
- The ↺ mark, indicating there is little remaining battery time, sometimes flashes depending on the operating conditions or ambient temperature and environment even if the remaining battery time is 5 to 10 minutes.

How to store the battery pack

- If the battery pack is not used for a long time, do the following once a year to maintain proper function.
  1. Fully charge the battery pack.
  2. Discharge on your camcorder.
  3. Remove the battery pack from your camcorder and store it in a dry, cool place.
- To discharge the battery pack on your camcorder, leave your camcorder in CAMERA (standby) mode without a cassette inserted until the power goes off.

Battery life

- The battery life is limited. Battery capacity drops little by little as you use it more and more, and as time passes. When the available battery time is shortened considerably, a probable cause is that the battery pack has reached the end of its life. Please buy a new battery pack.
- The battery life varies according to storage and operating conditions, and environment for each battery pack.

О батарейном блоке “InfoLITHIUM”

- Держите под рукой запасные батарейные блоки с зарядом, в два или три раза большим, чем ожидаемое время съемки, и проводите пробную съемку перед тем, как выполнить реальную запись.
- Не подвергайте батарейный блок воздействию воды. Батарейный блок не является водостойким.

Индикатор времени оставшегося заряда батарейного блока

- Если питание отключается, хотя индикатор времени оставшегося заряда батарейного блока указывает на то, что батарейный блок достаточно заряжен для функционирования видеокамеры, снова зарядите батарейный блок полностью, так чтобы индикация времени оставшегося заряда батарейного блока была правильной. Заметьте, тем не менее, что точная индикация времени заряда батарейного блока иногда не будет восстанавливаться, если он длительное время использовался при высоких температурах или был оставлен в полностью заряженном состоянии, или при частом использовании батарейного блока. Оставшееся время работы батарейного блока рассчитывается только приблизительно.
- Иногда метка ↺, указывающая на то, что времени заряда батарейного блока осталось мало, мигает в зависимости от условий окружающей температуры и среды, даже если заряда осталось на 5 – 10 минут.

Как хранить батарейный блок

- Если батарейный блок не используется в течение длительного времени, один раз в год выполняйте следующее для поддержания его нормальной работы.
  1. Полностью зарядите батарейный блок.
  2. Разрядите его с помощью видеокамеры.
  3. Снимите батарейный блок с видеокамеры и храните в сухом прохладном месте.
- Для разрядки батарейного блока на видеокамере оставьте ее в режиме (ожидания) CAMERA без кассеты, пока вся энергия не будет израсходована.

Срок службы батарейного блока

- Срок службы батарейного блока ограничен. Емкость батарейного блока мало-помалу падает по мере того, как Вы с течением времени используете его все больше и больше. Когда доступное время заряда батарейного блока значительно сократится, возможной причиной является то, что срок службы батарейного блока закончился. Приобретите новый батарейный блок.
- Срок службы каждого батарейного блока зависит от условий его хранения, эксплуатации и окружающей среды.

Using your camcorder abroad

Using your camcorder abroad

You can use your camcorder in any country or area with the AC power adaptor supplied with your camcorder within 100 V to 240 V AC, 50/60 Hz.

Your camcorder is a PAL system based camcorder. If you want to view the playback picture on a TV, it must be a PAL system based TV with Video/Audio input jack.
The following shows TV colour systems used overseas.

PAL system
Australia, Austria, Belgium, China, Czech Republic, Denmark, Finland, Germany, Holland, Hong Kong, Hungary, Italy, Kuwait, Malaysia, New Zealand, Norway, Poland, Portugal, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, United Kingdom etc.

PAL-M system
Brazil

PAL-N system
Argentina, Paraguay, Uruguay

NTSC system
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Guyana, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

SECAM system
Bulgaria, France, Guiana, Iran, Iraq, Monaco, Russia, Ukraine, etc.

Simple setting of clock by time difference

You can easily set the clock to the local time by setting a time difference. Select WORLD TIME in the menu settings. See page 83 for more information.

Использование Вашей видеокамеры за границей

Использование Вашей видеокамеры за границей

Вы можете использовать Вашу видеокамеру в любой стране или области с помощью сетевого адаптера переменного тока, прилагаемого к Вашей видеокамере, который можно использовать в пределах от 100 В до 240 В переменного тока с частотой 50/60 Гц.

Ваша видеокамера основана на системе PAL. Если Вы хотите просмотреть воспроизводимое изображение на телевизоре, то это должен быть телевизор, основанный на системе PAL, с входными гнездами VIDEO/AUDIO.
Ниже приведены системы цветного телевидения, используемые за рубежом.

Система PAL
Австралия, Австрия, Бельгия, Китай, Чешская Республика, Дания, Финляндия, Германия, Великобритания, Голландия, Гонконг, Венгрия, Италия, Кувейт, Малайзия, Новая Зеландия, Норвегия, Польша, Португалия, Сингапур, Словацкая Республика, Испания, Швеция, Швейцария, Таиланд и т.д.

Система PAL-M
Бразилия

Система PAL-N
Аргентина, Парагвай, Уругвай

Система NTSC
Багамские острова, Боливия, Канада, Центральная Америка, Чили, Колумбия, Эквадор, Гайана, Ямайка, Япония, Корея, Мексика, Перу, Суринам, Тайвань, Филиппины, США, Венесуэла и т.д.

Система SECAM
Болгария, Франция, Гвиана, Иран, Ирак, Монако, Россия, Украина и т.д.

Простая установка разницы во времени на часах

Вы можете легко установить часы на местное время путем установки разницы во времени. Выберите команду WORLD TIME в установках меню. Подробные сведения приведены на стр. 88.

Maintenance information and precautions

Moisture condensation

If your camcorder is brought directly from a cold place to a warm place, moisture may condense inside your camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or your camcorder may not operate correctly. If there is moisture inside your camcorder, the beep sounds and the indicator flashes. When the ⏏ indicator flashes at the same time, the cassette is inserted in your camcorder. If moisture condenses on the lens, the indicator will not appear.

If moisture condensation occurs

None of the functions except cassette ejection will work. Eject the cassette, turn off your camcorder, and leave it for about 1 hour with the cassette compartment open. Your camcorder can be used again if the indicator does not appear when the power is turned on again.

Note on moisture condensation

Moisture may condense when you bring your camcorder from a cold place into a warm place (or vice versa) or when you use your camcorder in a hot place as follows:

– You bring your camcorder from a ski slope into a place warmed up by a heating device
– You bring your camcorder from an air-conditioned car or room into a hot place outside
– You use your camcorder after a squall or a shower
– You use your camcorder in a high temperature and humid place

How to prevent moisture condensation

When you bring your camcorder from a cold place into a warm place, put your camcorder in a plastic bag and tightly seal it. Remove the bag when the air temperature inside the plastic bag has reached the surrounding temperature (after about 1 hour).

Информация по уходу за аппаратом и меры предосторожности

Конденсация влаги

Если видеокамера принесена прямо из холодного места в теплое, то внутри видеокамеры, на поверхности ленты или на объективе может произойти конденсанция влаги. В таком состоянии лента может прилипнуть к барабану головки и будет повреждена, или же видеокамера не сможет работать надлежащим образом. Если внутри видеокамеры произошла конденсация влаги, то прозвучит зуммерный сигнал, и будет мигать индикатор . Если в то же самое время будет мигать индикатор ⏏, это значит, что в видеокамеру вставлена кассета. Если влага сконденсировалась на объективе, индикатор появляться не будет.

Если произошла конденсация влаги

Ни одна из функций, кроме извлечения кассеты, не будет работать. Извлеките кассету, выключите видеокамеру и оставьте ее приблизительно на 1 час с открытым кассетным отсеком. Если при повторном включении питания индикатор не появится на дисплее, Вы можете снова пользоваться видеокамерой.

Примечание по конденсации влаги

Влага может образоваться, если Вы принесете Вашу видеокамеру из холодного места в теплое (или наоборот), или когда Вы используете Вашу видеокамеру в жарком месте в следующих случаях:

– Вы принесли Вашу видеокамеру с лыжного склона в помещение, где работает обогреватель.
– Вы принесли Вашу видеокамеру из автомобиля или из комнаты с воздушным кондиционированием в жаркое место на улице.
– Вы используете видеокамеру после грозы или дождя.
– Вы используете Вашу видеокамеру в очень жарком и влажном месте.

Как предотвратить конденсацию влаги

Если видеокамера принесена из холодного места в теплое, то положите видеокамеру в полиэтиленовый пакет и плотно заклейте его. Выньте видеокамеру из полиэтиленового пакета, когда температура воздуха внутри пакета достигнет температуры окружающего воздуха (приблизительно через 1 час).

Note on video heads

When the playback pictures still contain noise even if you have cleaned the video heads with a cleaning cassette, the video heads may have worn down due to long use. If this is the case, they must be replaced with new heads. Contact your Sony dealer or local authorised Sony service facility.

Примечание по видеоголовкам

Если воспроизводимое изображение все еще содержит помехи даже после того, как Вы почистили видеоголовки с помощью очистительной кассеты, то, возможно, видеоголовки уже износились вследствие длительной эксплуатации видеокамеры. В этом случае их следует заменить на новые. Обратитесь в сервисный центр Sony или в местное уполномоченное предприятие по обслуживанию изделий Sony.

Maintenance information

Cleaning the LCD screen

If fingerprints or dust make the LCD screen dirty, we recommend using a LCD Cleaning Kit (optional) to clean the LCD screen.

Cleaning the video head

To ensure normal recording and clear pictures, clean the video heads.
The video head may be dirty when:

– The indicator and "CLEANING CASSETTE" message appear one after another on the screen or the indicator flashes on the screen.
– Playback pictures contain noise.
– Playback pictures are hardly visible.
– Playback pictures do not appear.

[a] Slightly dirty
[b] Very dirty

If the above problem occurs, clean the video heads with the Sony V8-25CLD cleaning cassette (optional). Check the picture and if the above problem persists, repeat cleaning.

Информация по уходу

Чистка экрана ЖКД

Если на экране ЖКД появятся отпечатки пальцев или пыль, рекомендуется воспользоваться очистительным набором для ЖКД (приобретается дополнительно) для чистки ЖКД.

Чистка видеоголовок

Для обеспечения нормальной записи и четкого изображения следует периодически чистить видеоголовки.
Видеоголовки, возможно, загрязнены, если:

– На экране поочередно появляются индикатор и сообщение "CLEANING CASSETTE", или мигает индикатор .
– Воспроизводимое изображение содержит помехи.
– Воспроизводимое изображение с трудом различимо.
– Воспроизводимое изображение не появляется на экране.

[a] Немного загрязнены
[b] Сильно загрязнены

В случае возникновения указанных выше проблем, почистите видеоголовки с помощью чистящей кассеты Sony V8-25CLD (приобретается дополнительно). Проверьте изображение и, если описанные выше проблемы не устранились, повторите чистку.

Charging the built-in rechargeable battery in your camcorder

A built-in rechargeable battery is supplied with your camcorder so as to retain the date and time, etc., regardless of the setting of the POWER switch. The rechargeable battery is always charged as long as you are using your camcorder. The battery, however, will get discharged in about 6 months if you do not use your camcorder at all. Even if the rechargeable battery is not charged, it will not affect the camcorder operation. To retain the date and time, etc., charge the battery pack if the battery pack is discharged.

Charging the built-in rechargeable battery:

– Connect your camcorder to a wall socket using the AC power adaptor supplied with your camcorder, and leave your camcorder with the POWER switch turned off for more than 24 hours.
– Or install the fully charged battery pack in your camcorder, and leave your camcorder with the POWER switch turned off for more than 24 hours.

Зарядка встроенной аккумуляторной батарейки, установленной в видеокамере

В Вашей видеокамере имеется встроенная аккумуляторная батарейка, предназначенная для сохранения даты, времени и т.д. независимо от положения переключателя POWER. Аккумуляторная батарейка всегда подзаряжается, когда Вы используете видеокамеру. Однако, если вообще не использовать видеокамеру, батарейка полностью разрядится приблизительно через 6 месяцев. Даже если аккумуляторная батарейка не будет заряжена, это не повлияет на работу видеокамеры. Для сохранения в памяти даты и времени следует зарядить батарейный блок, если он разряжен.

Зарядка встроенной аккумуляторной батарейки:

– Подсоедините Вашу видеокамеру к электросети, используя сетевой адаптер переменного тока, поставляемый с Вашей видеокамерой, и оставьте Вашу видеокамеру с переключателем POWER в выключенном положении более чем на 24 часа.
– Или установите полностью заряженный батарейный блок в Вашей видеокамере с переключателем POWER в выключенном положении более чем на 24 часа.

Precautions

Camcorder operation

- Operate your camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in these operating instructions.
- If any solid object or liquid get inside the casing, unplug your camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful with the lens.
- Keep the POWER switch set to OFF (CHG) when you are not using your camcorder.
- Do not wrap your camcorder with a towel, for example, and operate it. Doing so might cause heat to build up inside.
- Keep your camcorder away from strong magnetic fields or mechanical vibration. Noise may occur on images.
- Do not touch the LCD screen with your fingers or a sharp-pointed object.
- If your camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- While using your camcorder, the back of the LCD screen may heat up. This is not a malfunction.

Меры предосторожности

Эксплуатация видеокамеры

- Эксплуатируйте видеокамеру от 7,2 В (батарейный блок) или 8,4 В (сетевой адаптер переменного тока).
- Что касается эксплуатации видеокамеры от постоянного и переменного тока, используйте принадлежности, рекомендуемые в данной инструкции по эксплуатации.
- Если какой-нибудь твердый предмет или жидкость попали внутрь корпуса, выключите видеокамеру и проверьте ее у дилера Sony перед дальнейшей ее эксплуатацией.
- Не допускайте грубого обращения с видеокамерой или механических ударов. Будьте особенно осторожны с объективом.
- Если видеокамера не используется, установите выключатель POWER в положении OFF (CHG).
- Не заворачивайте Вашу видеокамеру, например, в полотенце, и не эксплуатируйте ее в таком состоянии. В противном случае может произойти повышение температуры внутри видеокамеры.
- Держите Вашу видеокамеру подальше от сильных магнитных полей и не подвергайте ее механической вибрации. На изображении могут появиться помехи.
- Не прикасайтесь к экрану ЖКД пальцами или острыми предметами.
- При эксплуатации Вашей видеокамеры в холодном месте на экране ЖКД может появляться остаточное изображение. Это не является неисправностью.
- При эксплуатации Вашей видеокамеры, задняя сторона экрана ЖКД может нагреваться. Это не является неисправностью.

Built-in light

- Do not knock or jolt the built-in light while it is turned on as it may damage the bulb or shorten the life of the bulb.
- Do not leave the built-in light on while it is resting on or against something; it may cause a fire or damage the built-in light.

On handling tapes

Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense the type and thickness of the tape and if the recording tab is in or out.

Camcorder care

- Remove the tape, and periodically turn on the power, operate the CAMERA and PLAYER sections and play back a tape for about 5 minutes when your camcorder is not to be used for a long time.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.
- Do not let sand get into your camcorder. When you use your camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause your camcorder to malfunction, and sometimes this malfunction cannot be repaired.

Встроенная подсветка

- Не стучите и не трясите встроенную подсветку в то время, когда она включена, поскольку это может повредить лампу или сократить срок службы лампы.
- Не оставляйте встроенную подсветку направленной на какой-либо предмет вблизи него; это может привести к возгоранию или повреждению встроенной подсветки.

Обращение с лентами

Не вставляйте ничего в маленькие отверстия на задней стороне кассеты. Эти отверстия используются для определения типа и толщины ленты, а также для определения наличия или отсутствия лепестка защиты записи на ленте.

Уход за видеокамерой

- Когда видеокамера в течение длительного времени не используется, вынимайте кассету и периодически включайте питание, дайте камере поработать в режиме CAMERA и PLAYER, включая воспроизведение кассеты примерно на 5 минут.
- Чистите объектив с помощью мягкой кисточки для удаления пыли. Если имеются отпечатки пальцев на объективе, удалите их с помощью мягкой ткани.
- Чистите корпус видеокамеры с помощью сухой мягкой ткани или мягкой ткани, слегка смоченной слабым раствором моющего средства. Не используйте растворители, которые могут повредить отделку.
- Не допускайте попадания песка в видеокамеру. Если Вы используете видеокамеру на песчаном пляже или в каком-либо пыльном месте, предохраните аппарат от песка или пыли. Песок или пыль могут привести к неисправности аппарата, которая иногда может быть неисправимой.

AC power adaptor

- Unplug the unit from a wall socket when you are not using the unit for a long time. To disconnect the mains lead, pull it out by the plug. Never pull the mains lead itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the mains lead forcibly, or place a heavy object on it. This will damage the cord and may cause fire or electrical shock.
- Prevent metallic objects from coming into contact with the metal parts of the connecting section. If this happens, a short may occur and the unit may be damaged.
- Always keep metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment. AM receivers and video equipment disturb AM reception and video operation.
- The unit becomes warm during use. This is not a malfunction.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

About care and storage of the lens

- Wipe the surface of the lens with a soft cloth in the following instances.
  - When there are fingerprints on the lens surface
  - In hot or humid locations
  - When the lens is used in environments susceptible to salt such as the seaside
- Store the lens in a well-ventilated location subject to little dirt or dust.

To prevent mold from growing on the lens, periodically perform the above.
We recommend turning on and operating your camcorder at least once per month to keep your camcorder in an optimum state for a long time.

Сетевой адаптер переменного тока

- Отсоедините аппарат от электрической сети, если он не используется длительное время. Для отсоединения сетевого шнура потяните его за разъем. Никогда не тяните за сам шнур.
- Не эксплуатируйте аппарат с поврежденным шнуром или в случае, если аппарат упал или был поврежден.
- Не сгибайте сетевой провод силой и не ставьте на него тяжелые предметы. Это повредит провод и может привести к пожару или поражению электрическим током.
- Будьте осторожны, чтобы никакие металлические предметы не соприкасались с металлическими контактами соединительной пластины. Если это случится, то может произойти короткое замыкание, и аппарат может быть поврежден.
- Следите за тем, чтобы металлические контакты были чистыми.
- Не разбирайте аппарат.
- Не подвергайте аппарат механической вибрации и не роняйте его.
- При использовании аппарата, особенно во время зарядки, держите его подальше от приемников АМ-радиовещания и видеоаппаратуры. Приемники АМ-радиовещания и видеоаппаратура нарушают АМ-радиоприем и работу видеоаппаратуры.
- В процессе эксплуатации аппарат нагревается. Это является вполне нормальным.
- Не размещайте аппарат в местах:
  - Чрезмерно жарких или холодных
  - Пыльных или грязных
  - Очень влажных
  - Подверженных вибрации

Об уходе за объективом и его хранении

- Протирайте поверхность объектива мягкой тканью в следующих случаях.
  - Если на поверхности объектива имеются отпечатки пальцев
  - В жарких и влажных местах
  - Если объектив используется в условиях, подверженных воздействию соли, например, на морском курорте.
- Храните объектив в хорошо проветриваемом месте без грязи и пыли.

Во избежание появления на объективе налета периодически выполняйте описанные выше процедуры.
Рекомендуется включать Вашу видеокамеру и пользоваться ею не реже 1 раза в месяц для поддержания видеокамеры в оптимальном состоянии в течение длительного времени.

Battery pack

- Use only the specified charger or video equipment for the charging function.
- To prevent an accidental short circuit, do not allow metal objects to come into contact with the battery terminals.
- Keep the battery pack away from fire.
- Never expose the battery pack to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.
- Keep the battery pack dry.
- Do not expose the battery pack to any mechanical shock.
- Do not disassemble nor modify the battery pack.
- Attach the battery pack to the video equipment securely.
- Charging while some capacity remains does not affect the original battery capacity.

Батарейный блок

- Для зарядки используйте только рекомендуемое зарядное устройство или видеоаппаратуру.
- Для предотвращения несчастного случая из-за короткого замыкания не допускайте контакта металлических предметов с полюсами батарейного блока.
- Не располагайте батарейный блок вблизи огня.
- Не подвергайте батарейный блок воздействию температур свыше 60°C, например, в припаркованном под солнцем автомобиле или под прямым солнечным светом.
- Следите за тем, чтобы батарейный блок был сухим.
- Не подвергайте батарейный блок воздействию каких-либо механических ударов.
- Не разбирайте и не видоизменяйте батарейный блок.
- Прикрепляйте батарейный блок к видеоаппаратуре плотно.
- Зарядка в случае оставшейся емкости заряда не отражается на емкости первоначального заряда.

Maintenance information and precautions

Note on dry batteries (CCD-TRV107E/TRV208E/TRV408E only)

To avoid possible damage from battery leakage or corrosion, observe the following:
– Be sure to insert the batteries with the + – polarities matched to the + – marks
– Dry batteries are not rechargeable
– Do not use a combination of new and old batteries
– Do not use different types of batteries
– Current drains from batteries when you are not using them for a long time
– Do not use leaking batteries

If batteries are leaking

• Wipe off the liquid in the battery compartment carefully before replacing the batteries.
• If you touch the liquid, wash it off with water.
• If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

If any problem occurs, unplug your camcorder and contact your nearest Sony dealer.

Информация по уходу за аппаратом и меры предосторожности

Примечание к сухим батарейкам (Только модель CCD-TRV107E/TRV208E/TRV408E)

Во избежание возможного повреждения видеокамеры вследствие утечки внутреннего вещества батареек или коррозии соблюдайте следующее:
– При установке батареек соблюдайте правильную полярность + – в соответствии с метками + –.
– Сухие батарейки нельзя перезаряжать.
– Не используйте новые батарейки вместе со старыми.
– Не используйте батарейки разного типа.
– Если батарейки не используются длительное время, они постепенно разряжаются.
– Не используйте батарейки, которые потекли.

Если произошла утечка внутреннего вещества батареек

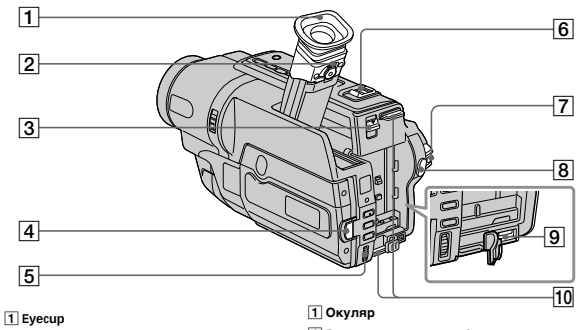
• Перед тем, как заменить батарейки, тщательно протрите остатки жидкости в отсеке для батареек.
• В случае попадания жидкости на кожу, смойте жидкость водой.
• В случае попадания жидкости в глаза, промойте свои глаза большим количеством воды, после чего обратитесь к врачу.

В случае возникновения каких-либо проблем, отключите Вашу видеокамеру от источника питания и обратитесь в ближайший сервисный центр Sony.

— Quick Reference —

Identifying the parts and controls

Camcorder



1 **Eyecup**
2 **Viewfinder lens adjustment lever** (p. 31)
3 **▼ BATT release lever** (p. 15)
4 **OPEN button** (p. 26)
5 **SEL/PUSH EXEC dial** (p. 22, 77)
6 **Power zoom lever** (p. 30)
7 **POWER switch** (p. 26)
8 **START/STOP button** (p. 26)
9 **DC IN jack** (p. 16, 20)
10 **Hooks for shoulder strap** (p. 119)

Attaching the shoulder strap

Attach the shoulder strap supplied with your camcorder to the hooks for the shoulder strap.

— Оперативный справочник —

Обозначение частей и регуляторов

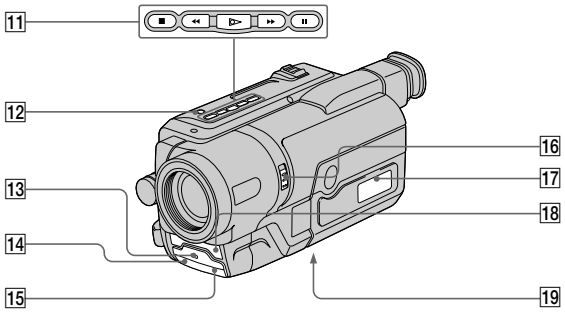
Видеокамера

1 **Окуляр**
2 **Рычаг регулировки объектива видоискателя** (стр. 31)
3 **Рычаг для снятия батарейного блока ▼ BATT** (стр. 15)
4 **Кнопка OPEN** (стр. 26)
5 **Диск SEL/PUSH EXEC** (стр. 22, 77)
6 **Рычаг привода трансфокатора** (стр. 30)
7 **Переключатель POWER** (стр. 26)
8 **Кнопка START/STOP** (стр. 26)
9 **Гнездо DC IN** (стр. 16, 20)
10 **Крючки для плечевого ремня** (стр. 119)

Прикрепление плечевого ремня

Прикрепите плечевой ремень, прилагаемый к Вашей видеокамере, к крючкам для плечевого ремня.

Identifying the parts and controls



11 **Video control buttons** (p. 38, 40)
■ STOP (stop)
◄◄ REW (rewind)
► PLAY (playback)*
►► FF (fastforward)
❚❚ PAUSE (pause)
12 **LIGHT button** (p. 62)
13 **Recording lamp** (p. 26)
14 **Infrared rays emitter** (p. 34)
15 **Remote sensor** (CCD-TRV107E / TRV208E / TRV408E only) (p. 124)
16 **NIGHTSHOT switch** (p. 34)
17 **Display window** (p. 126)
18 **Microphone** (p. 26)
19 **Tripod receptacle** (base)
Make sure that the length of the tripod screw is less than 5.5 mm (7/32 in.). Otherwise, you cannot attach the tripod securely and the screw may damage your camcorder.

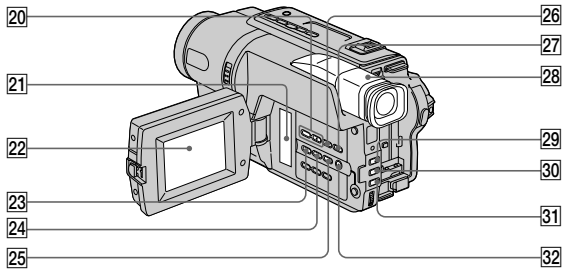
* This button has a tactile dot.

Обозначение частей и регуляторов

11 **Кнопки управления видеоизображением** (стр. 38, 40)
■ STOP (стоп)
◄◄ REW (ускоренная перемотка назад)
► PLAY (воспроизведение)*
►► FF (ускоренная перемотка вперед)
❚❚ PAUSE (пауза)
12 **Кнопка LIGHT** (стр. 62)
13 **Лампочка записи** (стр. 26)
14 **Излучатель инфракрасных лучей** (стр. 34)
15 **Датчик дистанционного управления** (Только модель CCD-TRV107E/TRV208E/TRV408E) (стр. 124)
16 **Переключатель NIGHTSHOT** (стр. 34)
17 **Окошко дисплея** (стр. 126)
18 **Микрофон** (стр. 26)
19 **Гнездо для штатива** (основание)
Убедитесь, что длина винта штатива менее 5,5 мм. В противном случае Вы не сможете надежно прикрепить штатив, а винт может повредить видеокамеру.

* На этой кнопке имеется тактильная точка.

Identifying the parts and controls



20 **VOLUME +*/ – buttons** (p. 38)
21 **Speaker**
22 **LCD screen** (p. 26)
23 **EXPOSURE button** (p. 54)
24 **TITLE button** (p. 57, 60)
25 **EASY DUBBING button** (p. 68)
26 **DISPLAY button** (p. 39)
27 **END SEARCH button** (p. 37)
28 **Viewfinder** (p. 31)
29 **FADER button*** (p. 46)
30 **BACK LIGHT button** (p. 33)
31 **FOCUS button** (p. 55)
32 **MENU button*** (p. 77)

* This button has a tactile dot.

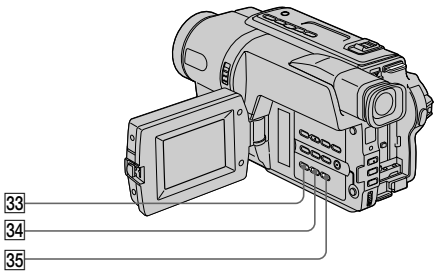
Обозначение частей и регуляторов

20 **Кнопки VOLUME +*/ –** (стр. 38)
21 **Громкоговоритель**
22 **Экран ЖКД** (стр. 26)
23 **Кнопка EXPOSURE** (стр. 54)
24 **Кнопка TITLE** (стр. 57, 60)
25 **Кнопка EASY DUBBING** (стр. 68)
26 **Кнопка DISPLAY** (стр. 39)
27 **Кнопка END SEARCH** (стр. 37)
28 **Видоискатель** (стр. 31)
29 **Кнопка FADER*** (стр. 46)
30 **Кнопка BACK LIGHT** (стр. 33)
31 **Кнопка FOCUS** (стр. 55)
32 **Кнопка MENU*** (стр. 77)

* На этой кнопке имеется тактильная точка.

Identifying the parts and controls

Обозначение частей и регуляторов



33 **DATE button** (p. 36)

34 **TIME button*** (p. 36)

35 **COUNTER RESET button** (p. 27)

* This button has a tactile dot.

33 **Кнопка DATE** (стр. 36)

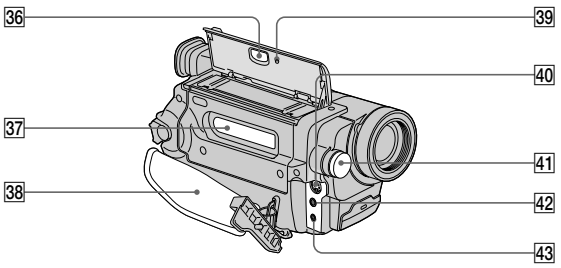
34 **Кнопка TIME*** (стр. 36)

35 **Кнопка COUNTER RESET** (стр. 27)

* На этой кнопке имеется тактильная точка.

Identifying the parts and controls

Обозначение частей и регуляторов



36 **⏏ EJECT button** (p. 24)

37 **Cassette compartment** (p. 24)

38 **Grip strap**

39 **RESET button** (p. 92)

40 **S VIDEO OUT jack** (p. 42, 66, 68)

41 **Built-in light** (p. 62)

42 **A/V OUT jack** (p. 42, 66)

43 **RFU DC OUT (RFU adaptor DC output) jack** (p. 43)

36 **Кнопка ⏏ EJECT** (стр. 24)

37 **Кассетный отсек** (стр. 24)

38 **Ремень для захвата**

39 **Кнопка RESET** (стр. 99)

40 **Гнездо S VIDEO OUT** (стр. 42, 66, 68)

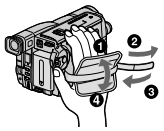
41 **Встроенная подсветка** (стр. 62)

42 **Гнездо A/V OUT** (стр. 42, 66)

43 **Гнездо RFU DC OUT (выход постоянного тока ВЧ адаптера)** (стр. 43)

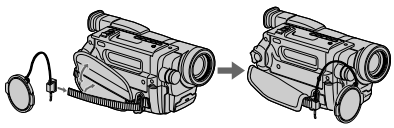
Fastening the grip strap
Fasten the grip strap firmly.

Пристегивание ремня для захвата
Пристегните ремень для захвата плотно.



Attaching the lens cap
Attach the lens cap to the grip strap as illustrated.

Прикрепление крышки объектива
Прикрепите крышку объектива к ремню для захвата, как показано на рисунке.



Identifying the parts and controls

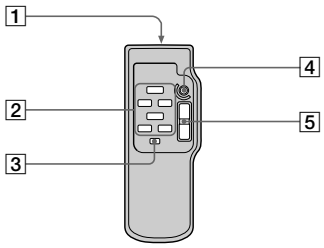
Обозначение частей и регуляторов

Remote Commander

Пульт дистанционного управления

– CCD-TRV107E/TRV208E/TRV408E only
The buttons that share the same name on the Remote Commander and your camcorder function identically to the buttons on your camcorder.

– Только модель CCD-TRV107E/ TRV208E/TRV408E
Кнопки пульта дистанционного управления, которые имеют одинаковые наименования с кнопками на видеокамере, функционируют идентично.



1 **Transmitter**
Point toward the remote sensor to control the camcorder after turning on the camcorder.

2 **Tape transport buttons** (p. 40)

3 **DISPLAY button** (p. 39)

4 **START/STOP button** (p. 26)

5 **Power zoom button** (p. 30)

1 **Передатчик**
Для управления видеокамерой направьте пульт на датчик дистанционного управления после ее включения.

2 **Кнопки перемещения ленты** (стр. 40)

3 **Кнопка DISPLAY** (стр. 39)

4 **Кнопка START/STOP** (стр. 26)

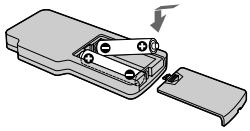
5 **Кнопка привода трансфокатора** (стр. 30)

Identifying the parts and controls

Обозначение частей и регуляторов

To prepare the Remote Commander
Insert 2 R6 (size AA) batteries by matching the + and – polarities on the batteries to the + – marks inside the battery compartment.

Для подготовки пульта дистанционного управления
Вставьте две батарейки размера R6 (AA), совместив полюсы + и – на батарейках со знаками + – внутри отсека для батареек.



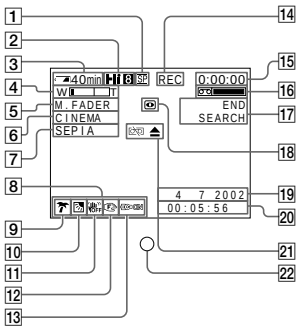
Notes on the Remote Commander
- Point the remote sensor away from strong light sources such as direct sunlight or overhead lighting. Otherwise, the Remote Commander may not function properly.
- Your camcorder works in the commander mode VTR 2. The commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid remote control unintentional operations. If you use another Sony VCR in the commander mode VTR 2, we recommend changing the commander mode or covering the sensor of the VCR with black paper.

Примечания к пульту дистанционного управления
- Не направляйте дистанционный датчик на сильные источники света, например, прямые солнечные лучи или осветительные приборы. В противном случае дистанционное управление может не действовать.
- Данная видеокамера работает в режиме пульта дистанционного управления VTR 2. Режимы пульта дистанционного управления 1, 2 и 3 используются для отличия данной видеокамеры от других видеомагнитофонов фирмы Sony во избежание непреднамеренного срабатывания пульта дистанционного управления. Если используется другой видеомагнитофон фирмы Sony, работающий в режиме VTR 2, рекомендуется изменить режим пульта дистанционного управления или закрыть датчик дистанционного управления видеомагнитофона черной бумагой.

Identifying the parts and controls

Operation indicators

LCD screen and Viewfinder/
Экран ЖКД и видоискатель



1 **Recording mode indicator** (p. 81)/ **Mirror mode indicator** (p. 28)

2 **Hi8 format indication** (p. 32)

3 **Remaining battery time indicator** (p. 32)

4 **Zoom indicator** (p. 30)/ **Exposure indicator** (p. 54)

5 **Fader indicator** (p. 46)

6 **Wide mode indicator** (p. 44)

7 **Picture effect indicator** (p. 49)

8 **Volume indicator** (p. 38)

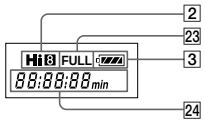
9 **PROGRAM AE indicator** (p. 51)

10 **Backlight indicator** (p. 33)

Обозначение частей и регуляторов

Рабочие индикаторы

Display window/Окошко дисплея



1 **Индикатор режима записи** (стр. 86)/ **индикатор зеркального режима** (стр. 28)

2 **Индикатор формата Hi8** (стр. 32)

3 **Индикатор оставшегося времени работы батарейного блока** (стр. 32)

4 **Индикатор трансфокатора** (стр. 30)/ **индикатор экспозиции** (стр. 54)

5 **Индикатор фейдера** (стр. 46)

6 **Индикатор широкоэкранного режима** (стр. 44)

7 **Индикатор эффекта изображения** (стр. 49)

8 **Индикатор громкости** (стр. 38)

9 **Индикатор PROGRAM AE** (стр. 51)

10 **Индикатор задней подсветки** (стр. 33)

Identifying the parts and controls

11 **SteadyShot off indicator** (CCD-TRV408E only) (p. 80)

12 **Manual focusing indicator** (p. 55)

13 **Built-in light indicator** (p. 62)

14 **STBY/REC indicator** (p. 26)/ **Video control mode indicator** (p. 40)

15 **Tape counter indicator** (p. 32)/ **Self-diagnosis display indicator** (p. 93)

16 **Remaining tape indicator** (p. 32)

17 **END SEARCH indicator** (p. 37)

18 **NIGHTSHOT indicator** (p. 34)

19 **AUTO DATE indicator** (p. 23)/ **Date indicator** (p. 22, 36)

20 **Time indicator** (p. 22, 36)

21 **Warning indicators** (p. 94)

22 **Recording lamp** (p. 26)
This indicator appears in the viewfinder only.

23 **FULL charge indicator** (p. 16)

24 **Tape counter indicator** (p. 32)/ **DATE or TIME indicator** (p. 22, 36)/ **Self-diagnosis display indicator** (p. 93)

Обозначение частей и регуляторов

11 **Индикатор выключенной устойчивой съемки** (Только модель CCD-TRV408E) (стр. 85)

12 **Индикатор ручной фокусировки** (стр. 55)

13 **Индикатор встроенной подсветки** (стр. 62)

14 **Индикатор STBY/REC** (стр. 26)/ **Индикатор режима управления видеоизображением** (стр. 40)

15 **Индикатор счетчика ленты** (стр. 32)/ **индикатор функции самодиагностики** (стр. 100)

16 **Индикатор оставшейся ленты** (стр. 32)

17 **Индикатор END SEARCH** (стр. 37)

18 **Индикатор NIGHTSHOT** (стр. 34)

19 **Индикатор AUTO DATE** (стр. 23)/ **индикатор даты** (стр. 22, 36)

20 **Индикатор времени** (стр. 22, 36)

21 **Предупреждающие индикаторы** (стр. 101)

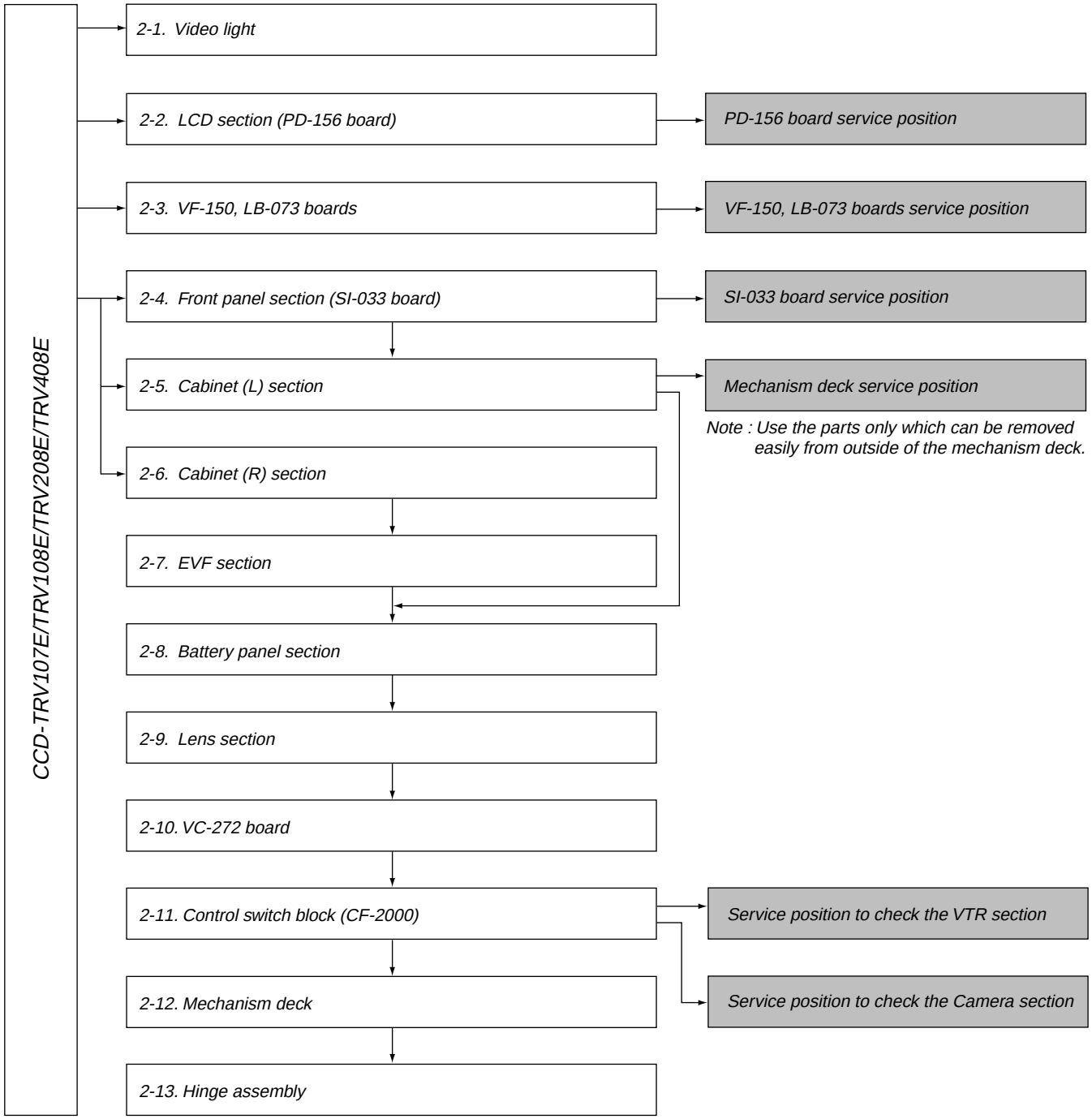
22 **Лампочка записи** (стр. 26)
Индикатор отображается только в видоискателе.

23 **Индикатор зарядки FULL** (стр. 16)

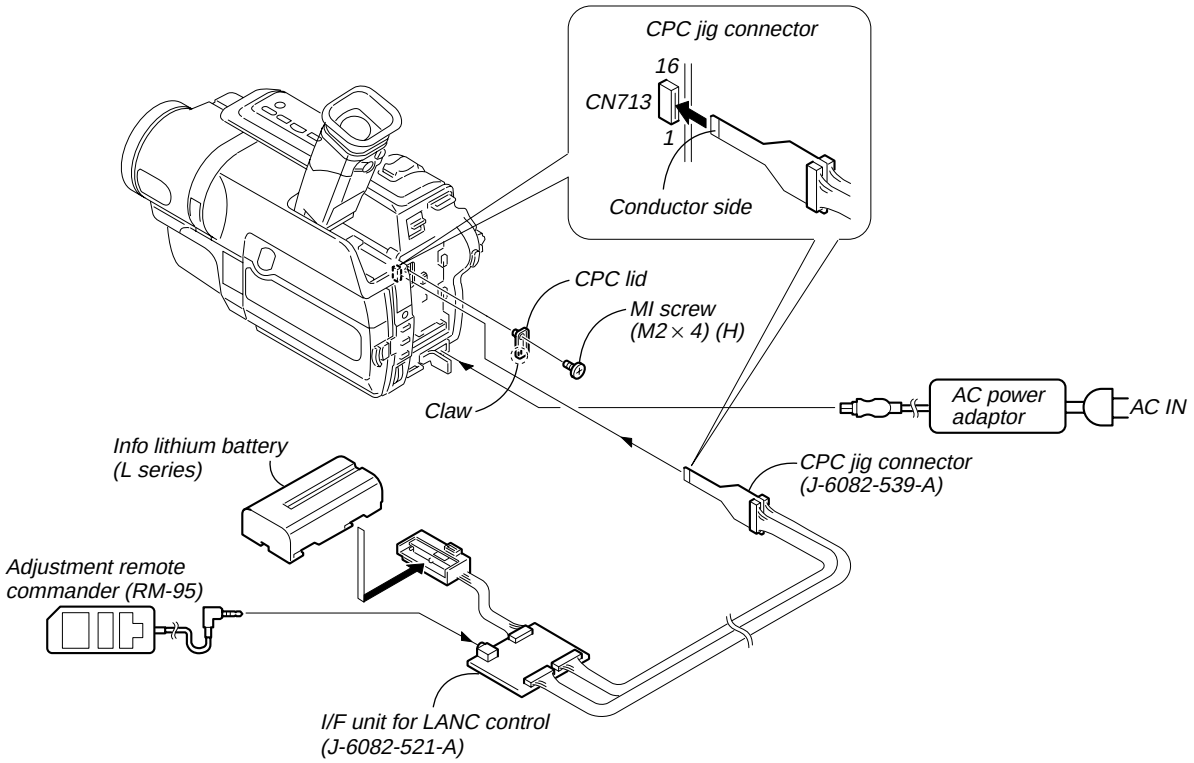
24 **Индикатор счетчика ленты** (стр. 32)/ **индикатор DATE или TIME** (стр. 22, 36)/ **индикатор функции самодиагностики** (стр. 100)

SECTION 2
DISASSEMBLY

The following flow chart shows the disassembly procedure.

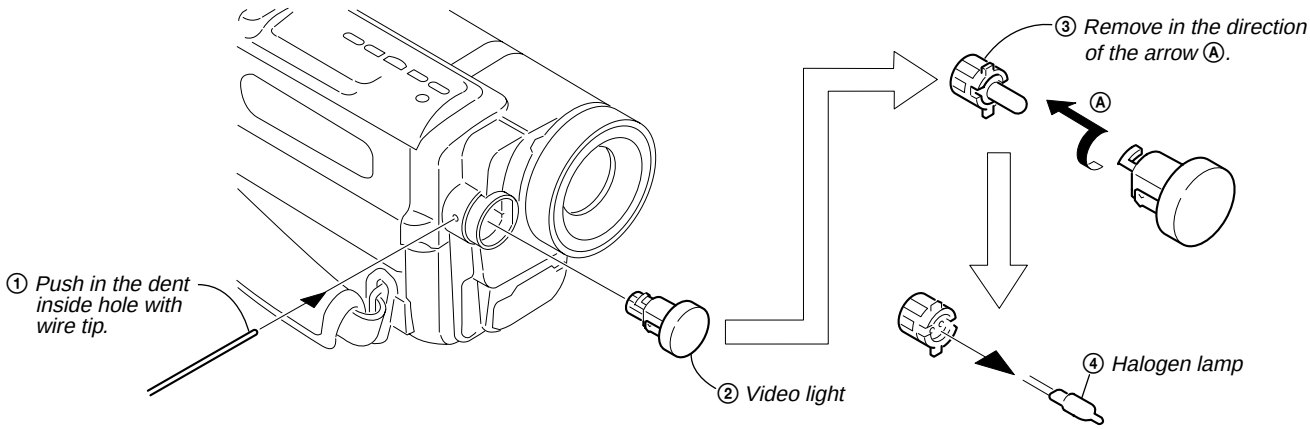

CCD-TRV107E/TRV108E/TRV208E/TRV408E
2-1. Video light
2-2. LCD section (PD-156 board)
PD-156 board service position
2-3. VF-150, LB-073 boards
VF-150, LB-073 boards service position
2-4. Front panel section (SI-033 board)
SI-033 board service position
2-5. Cabinet (L) section
Mechanism deck service position
Note : Use the parts only which can be removed easily from outside of the mechanism deck.
2-6. Cabinet (R) section
2-7. EVF section
2-8. Battery panel section
2-9. Lens section
2-10. VC-272 board
2-11. Control switch block (CF-2000)
Service position to check the VTR section
Service position to check the Camera section
2-12. Mechanism deck
2-13. Hinge assembly

[CONNECTION OF EQUIPMENT]

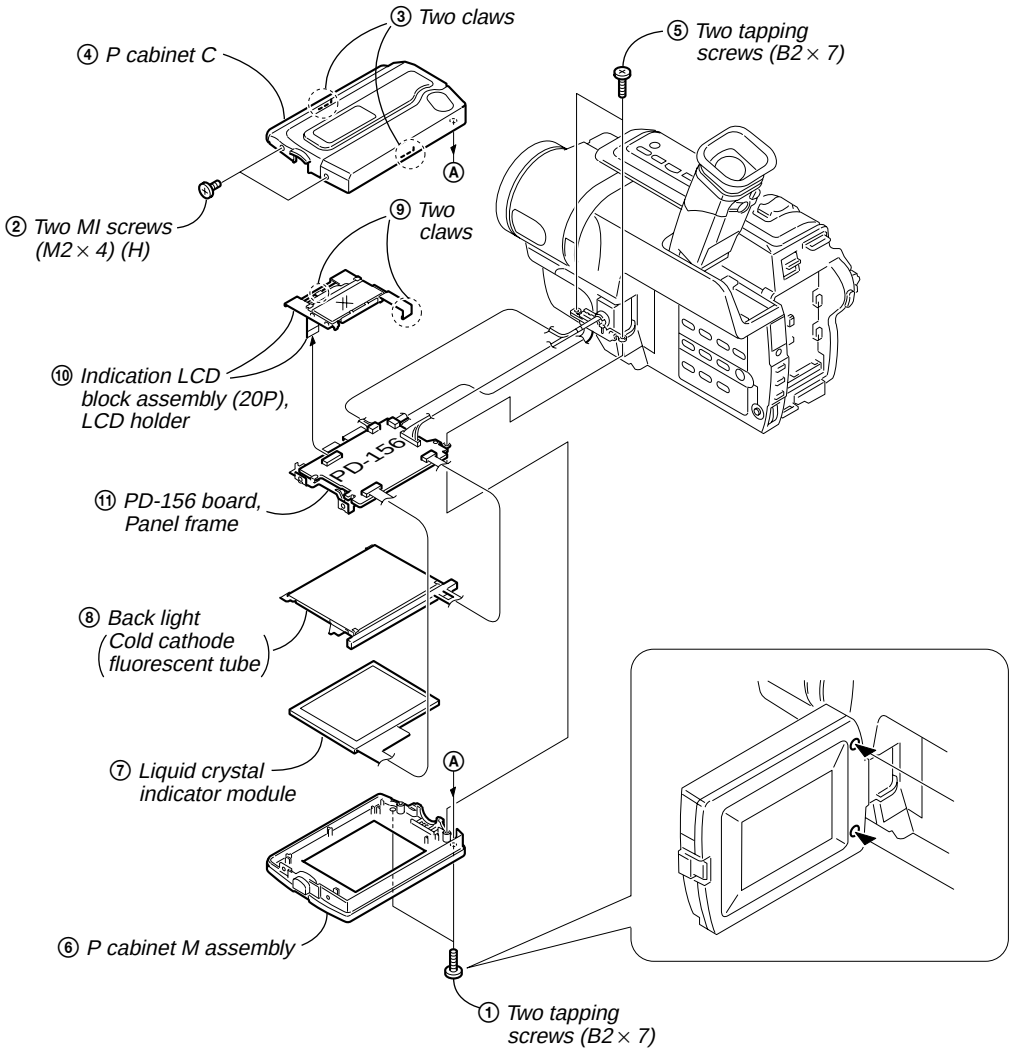


NOTE: Follow the disassembly procedure in the numerical order given.

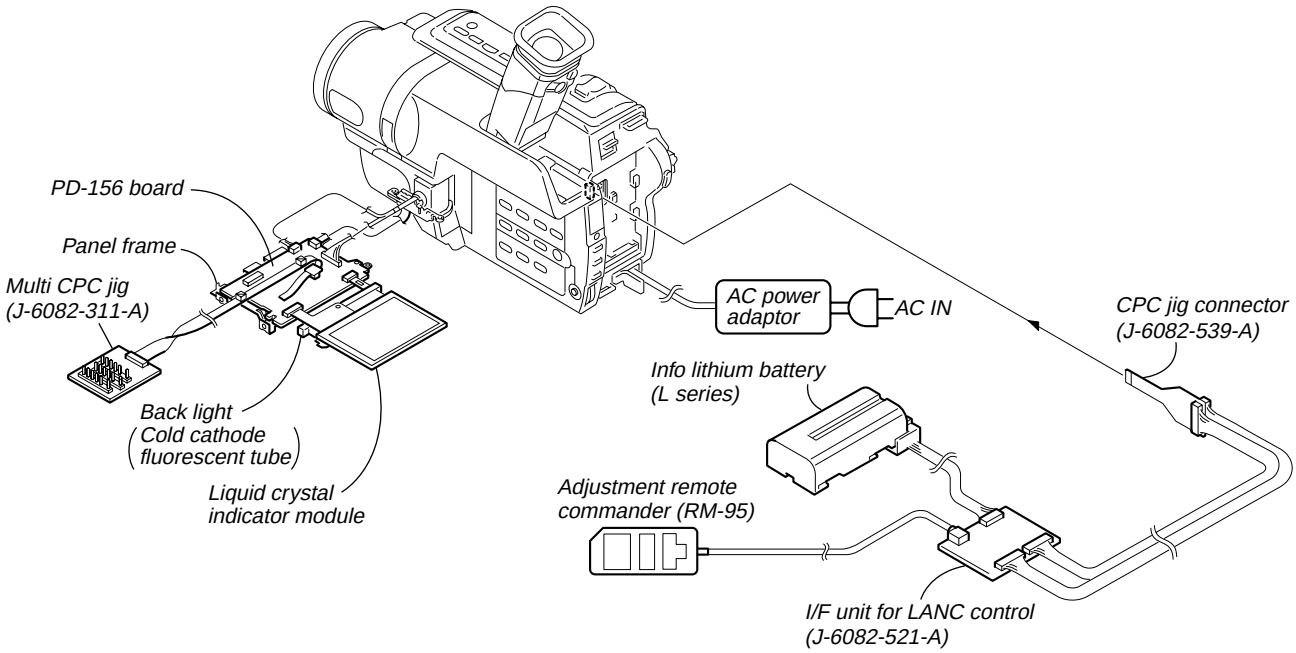
2-1. VIDEO LIGHT



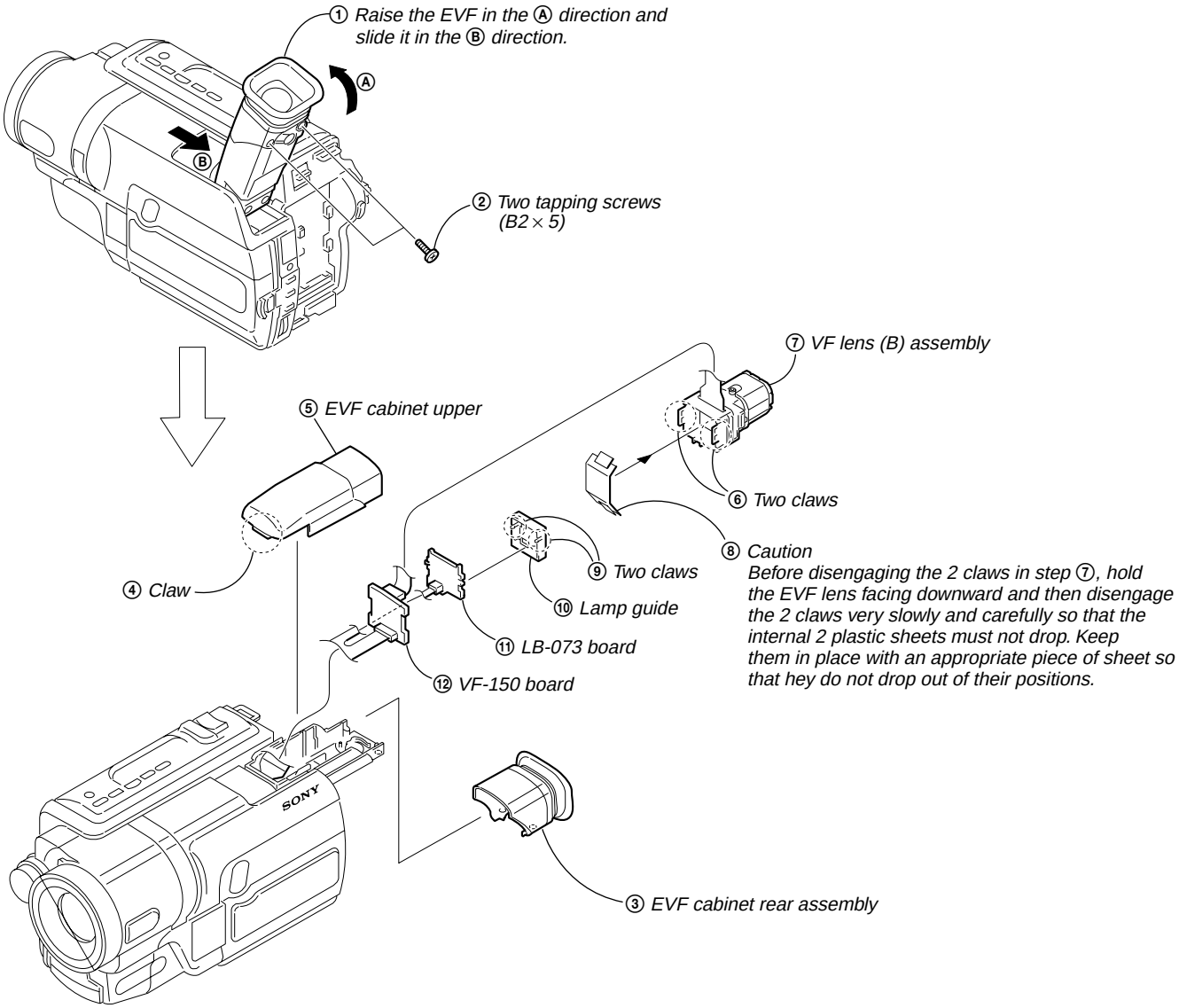
2-2. LCD SECTION (PD-156 BOARD)


③ Two claws
④ P cabinet C
⑤ Two tapping screws (B2 × 7)
② Two MI screws (M2 × 4) (H)
⑨ Two claws
⑩ Indication LCD block assembly (20P), LCD holder
PD-156
⑪ PD-156 board, Panel frame
⑧ Back light Cold cathode fluorescent tube
⑦ Liquid crystal indicator module
⑥ P cabinet M assembly
① Two tapping screws (B2 × 7)

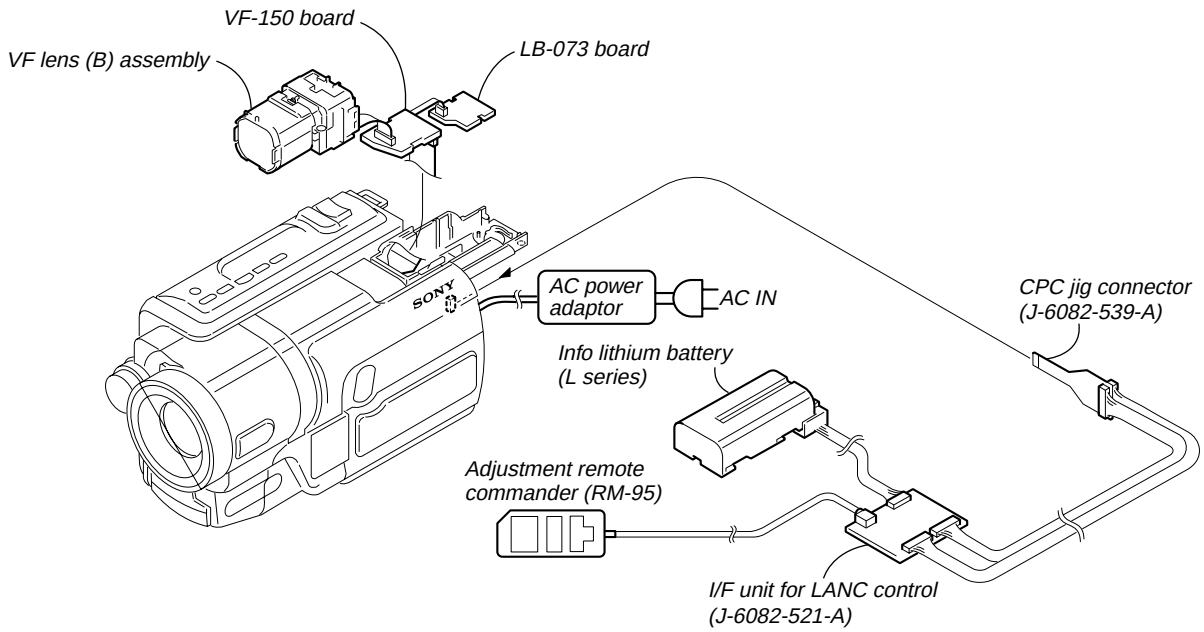
[PD-156 BOARD SERVICE POSITION]



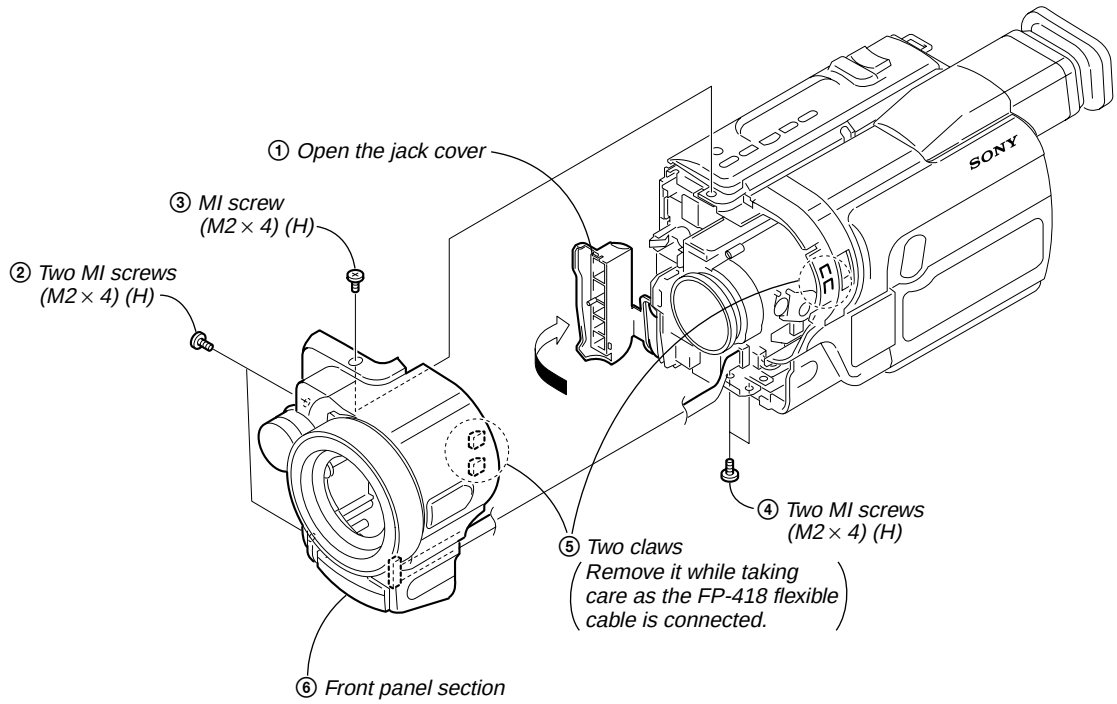
2-3. VF-150, LB-073 BOARDS


① Raise the EVF in the Ⓐ direction and slide it in the Ⓑ direction.
Ⓐ
Ⓑ
② Two tapping screws (B2 × 5)
⑦ VF lens (B) assembly
⑤ EVF cabinet upper
⑥ Two claws
⑧ Caution
Before disengaging the 2 claws in step ⑦, hold the EVF lens facing downward and then disengage the 2 claws very slowly and carefully so that the internal 2 plastic sheets must not drop. Keep them in place with an appropriate piece of sheet so that hey do not drop out of their positions.
⑨ Two claws
④ Claw
⑩ Lamp guide
⑪ LB-073 board
⑫ VF-150 board
SONY
③ EVF cabinet rear assembly

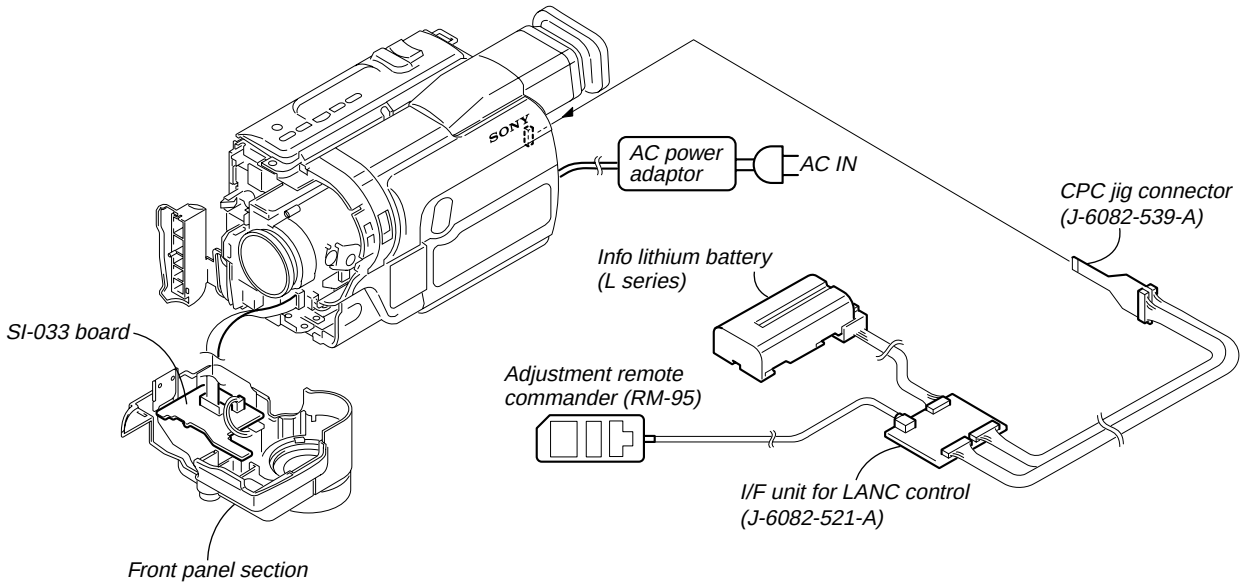
[VF-150, LB-073 BOARDS SERVICE POSITION]



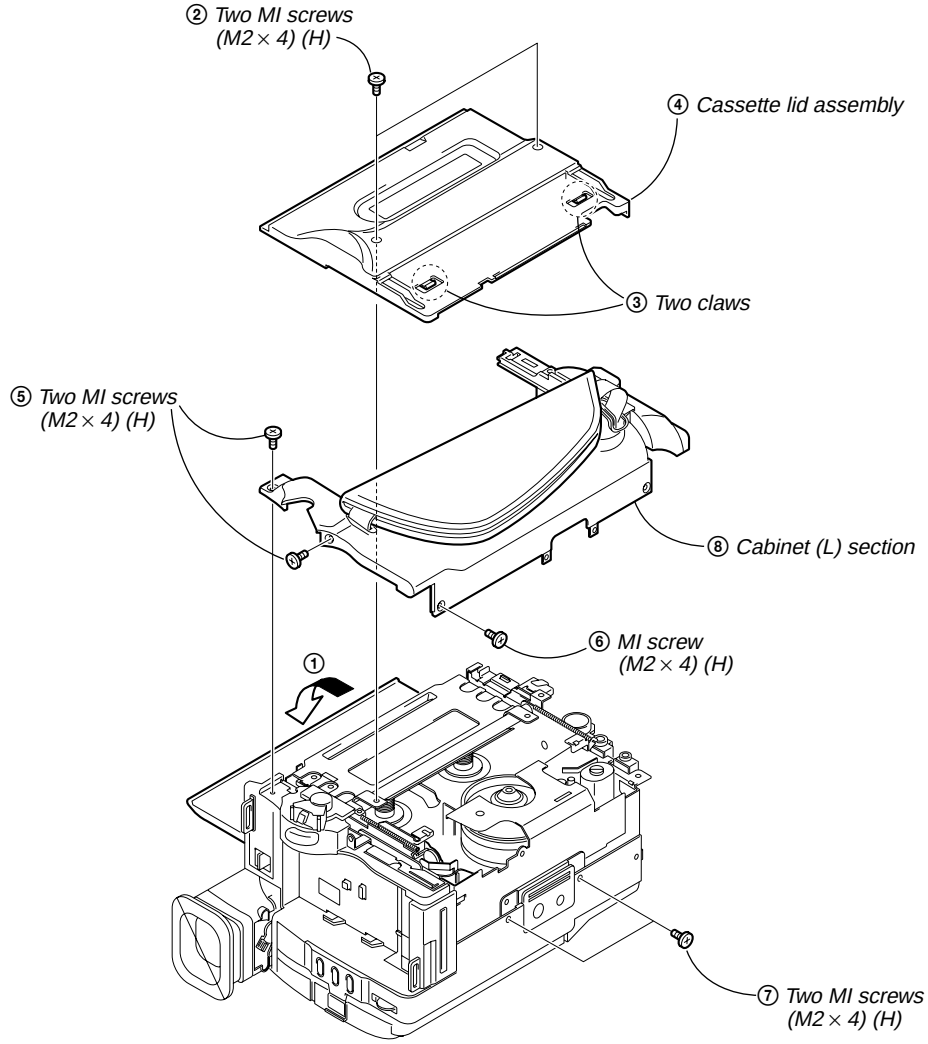
2-4. FRONT PANEL SECTION (SI-033 BOARD)


① Open the jack cover
③ MI screw (M2 × 4) (H)
② Two MI screws (M2 × 4) (H)
④ Two MI screws (M2 × 4) (H)
⑤ Two claws
Remove it while taking care as the FP-418 flexible cable is connected.
⑥ Front panel section
SONY

[SI-033 BOARD SERVICE POSITION]



2-5. CABINET (L) SECTION

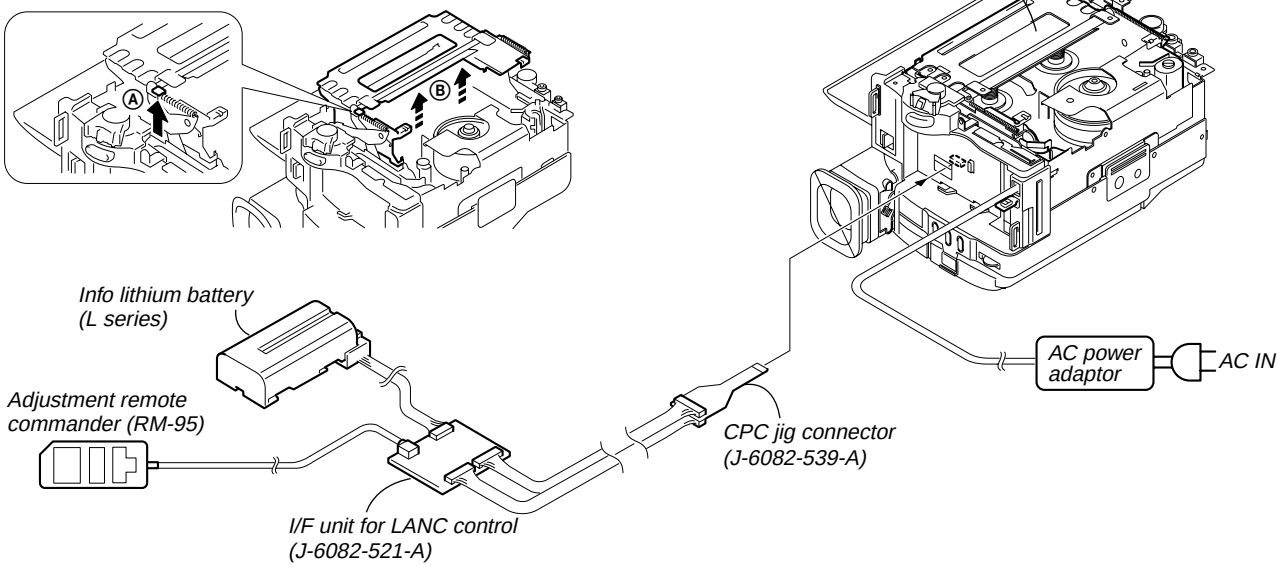

② Two MI screws (M2 × 4) (H)
④ Cassette lid assembly
③ Two claws
⑤ Two MI screws (M2 × 4) (H)
⑧ Cabinet (L) section
⑥ MI screw (M2 × 4) (H)
①
⑦ Two MI screws (M2 × 4) (H)

[MECHANISM DECK SERVICE POSITION]

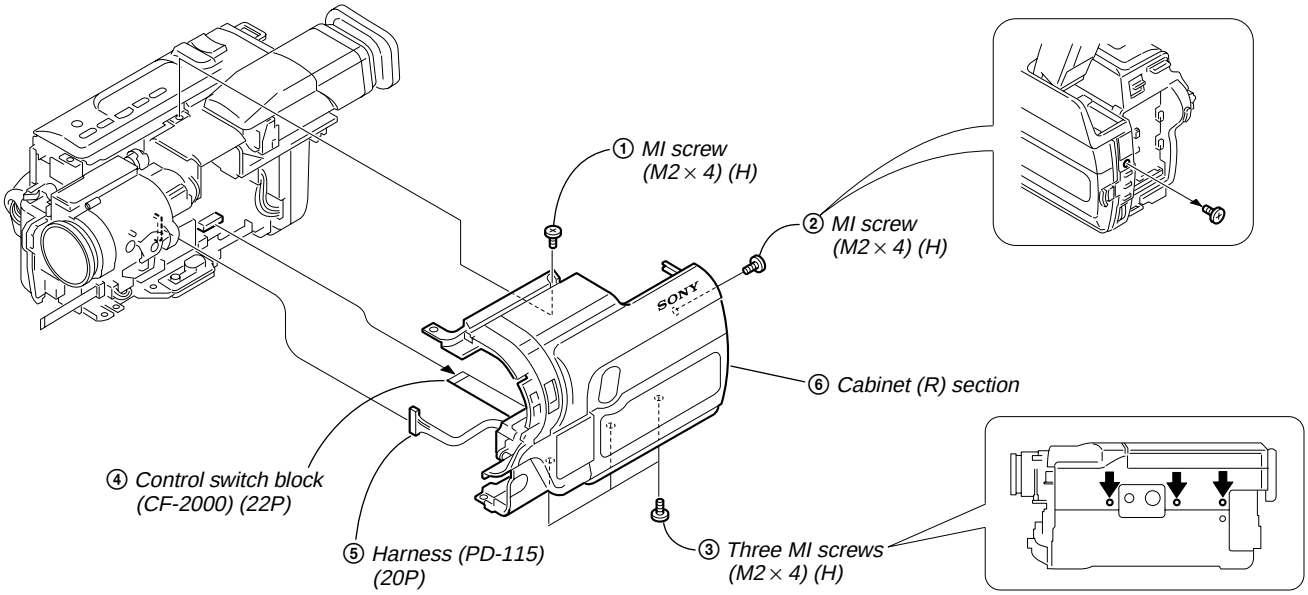
Note: *Use the parts only which can be removed easily from outside of the mechanism deck.*

- ***How to move up the cassette compartment manually***

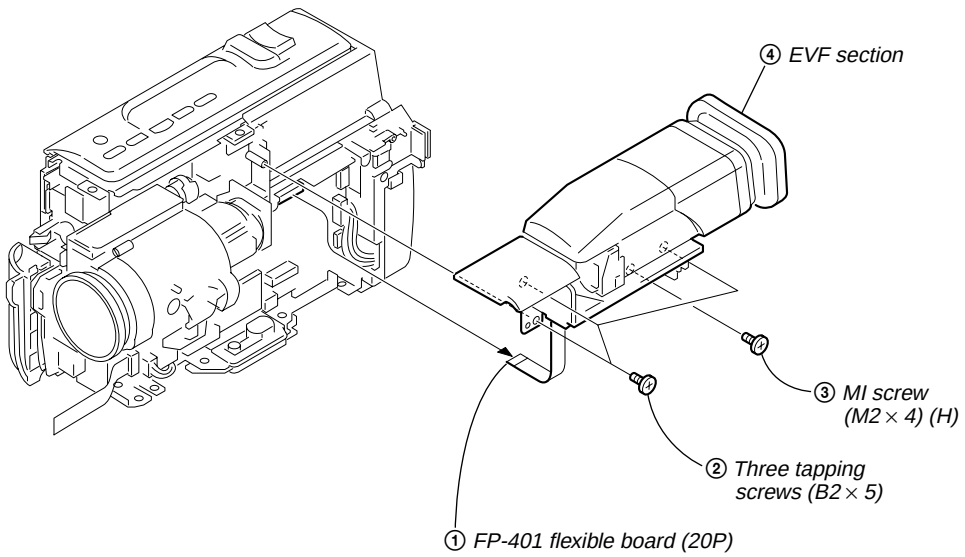
Press the cassette compartment in the direction of the arrow Ⓐ to move it up in the direction of the arrow Ⓑ.



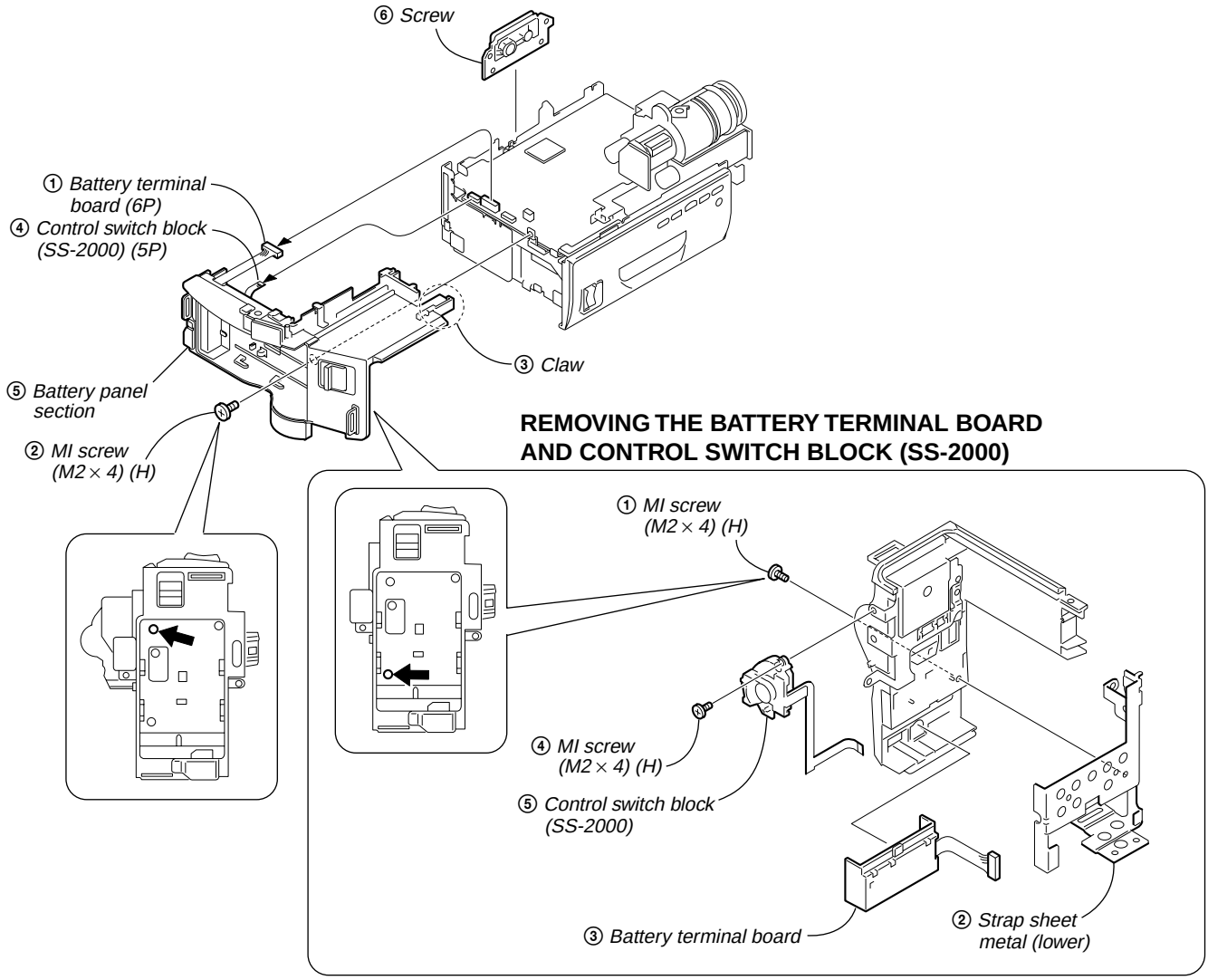
2-6. CABINET (R) SECTION


① MI screw (M2 × 4) (H)
② MI screw (M2 × 4) (H)
⑥ Cabinet (R) section
④ Control switch block (CF-2000) (22P)
⑤ Harness (PD-115) (20P)
③ Three MI screws (M2 × 4) (H)

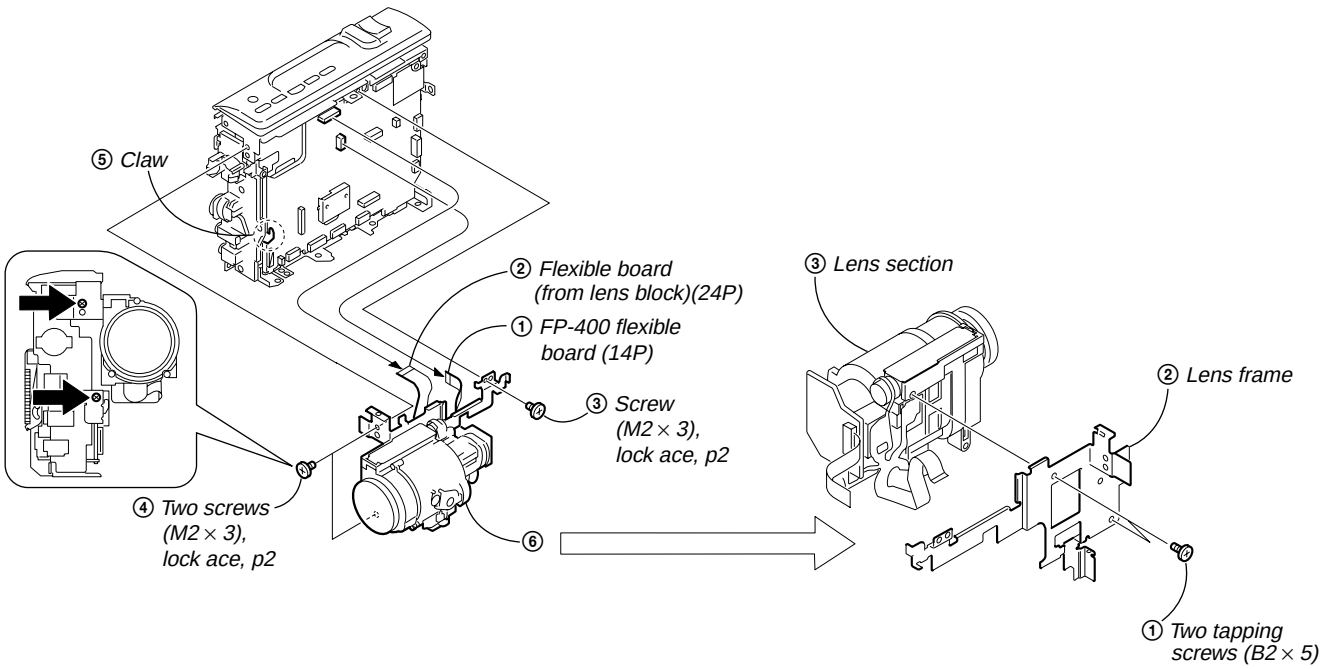
2-7. EVF SECTION



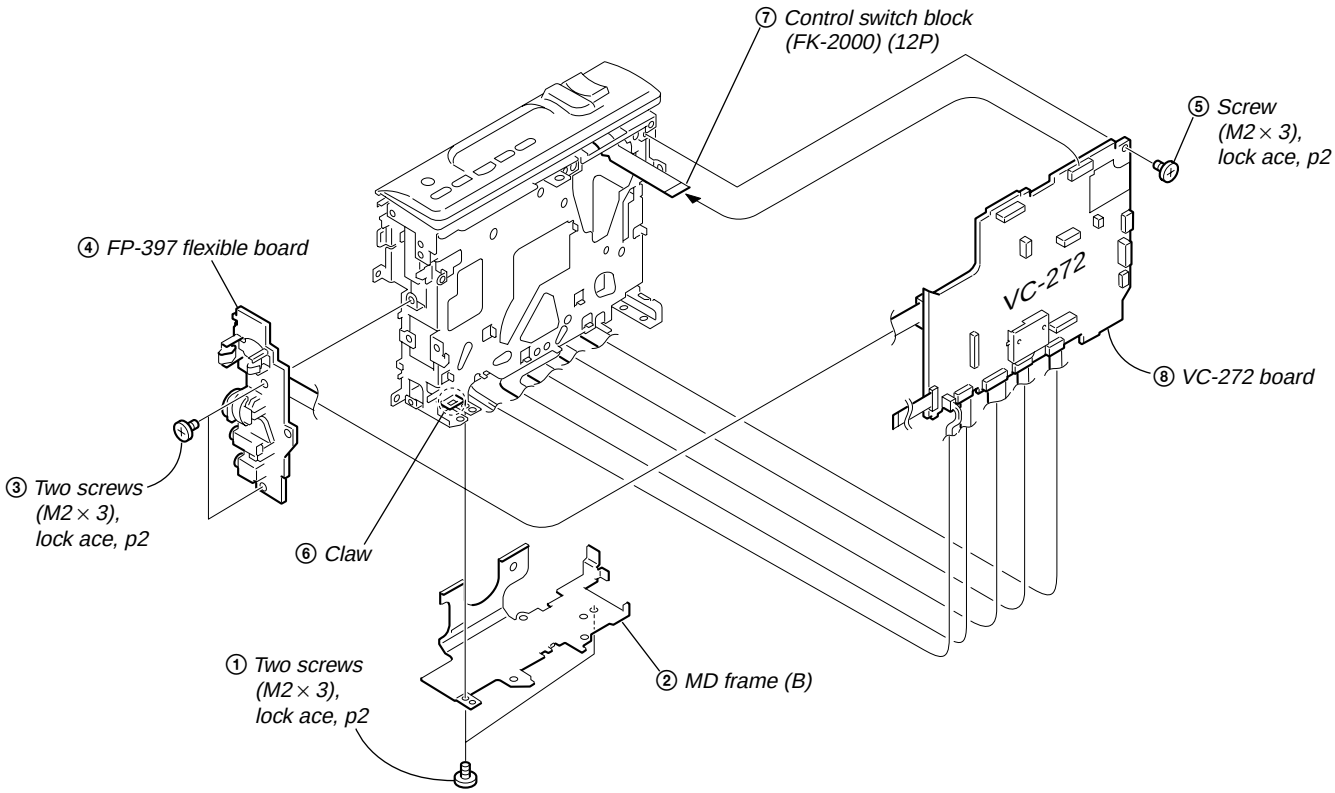
2-8. BATTERY PANEL SECTION


⑥ Screw
① Battery terminal board (6P)
④ Control switch block (SS-2000) (5P)
③ Claw
⑤ Battery panel section
② MI screw (M2 × 4) (H)
REMOVING THE BATTERY TERMINAL BOARD AND CONTROL SWITCH BLOCK (SS-2000)
① MI screw (M2 × 4) (H)
④ MI screw (M2 × 4) (H)
⑤ Control switch block (SS-2000)
③ Battery terminal board
② Strap sheet metal (lower)

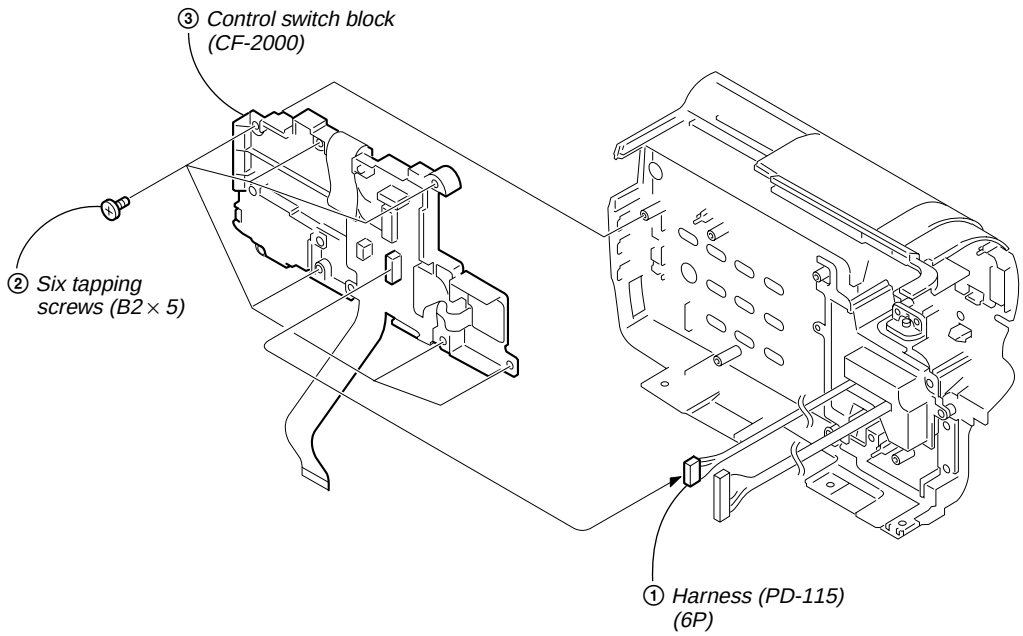
2-9. LENS SECTION


⑤ Claw
② Flexible board (from lens block)(24P)
① FP-400 flexible board (14P)
③ Screw (M2 × 3), lock ace, p2
④ Two screws (M2 × 3), lock ace, p2
⑥
③ Lens section
② Lens frame
① Two tapping screws (B2 × 5)

2-10. VC-272 BOARD


⑦ Control switch block (FK-2000) (12P)
⑤ Screw (M2 × 3), lock ace, p2
④ FP-397 flexible board
VC-272
⑧ VC-272 board
③ Two screws (M2 × 3), lock ace, p2
⑥ Claw
① Two screws (M2 × 3), lock ace, p2
② MD frame (B)

2-11. CONTROL SWITCH BLOCK (CF-2000)



[SERVICE POSITION TO CHECK THE VTR SECTION]

Connection to Check the VTR Section

To check the VTR section, set the VTR to the “Forced VTR power ON” mode.
Operate the VTR functions using the adjustment remote commander (with the HOLD switch set in the OFF position).

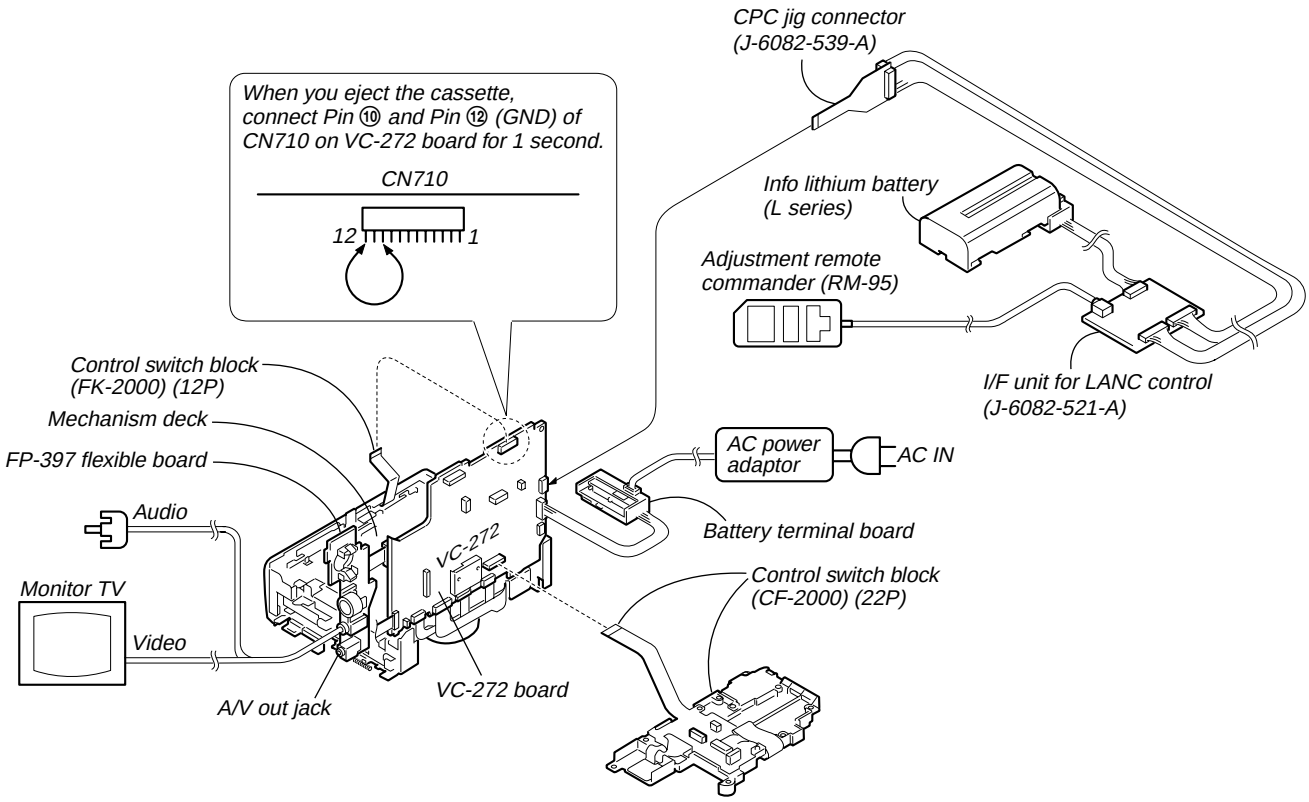
Setting the “Forced VTR Power ON” mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 02, and press the PAUSE button of the adjustment remote commander.

Exiting the “Forced VTR Power ON” mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.

Note : If the machine malfunctions (the operating mode changes by itself), connect the FK-2000 block, CF-2000 block.



[SERVICE POSITION TO CHECK THE CAMERA SECTION]

Connection to Check the Camera Section

To check the camera section, set the camera to the “Forced camera power ON” mode.

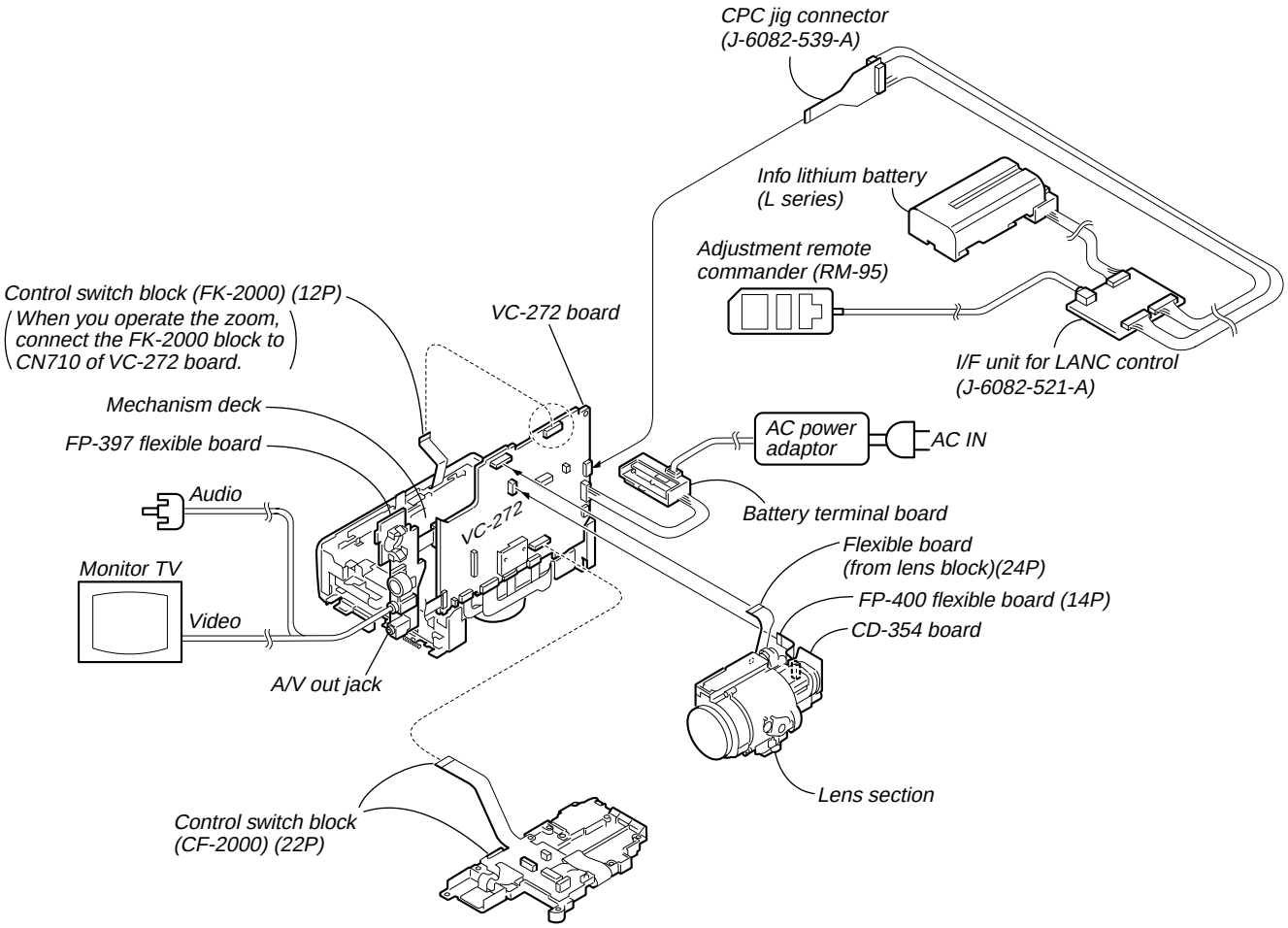
Setting the “Forced Camera Power ON” mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.

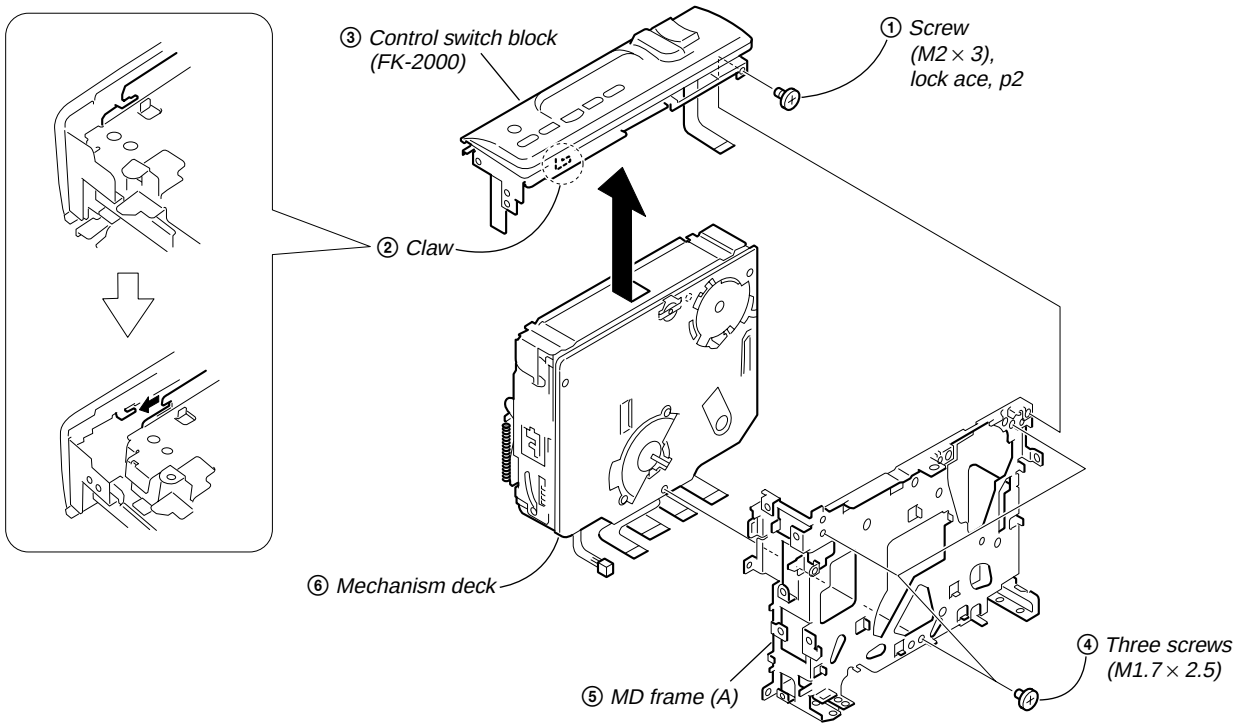
Exiting the “Forced Camera Power ON” mode

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.

Note : If the machine malfunctions (the operating mode changes by itself), connect the FK-2000 block, CF-2000 block.

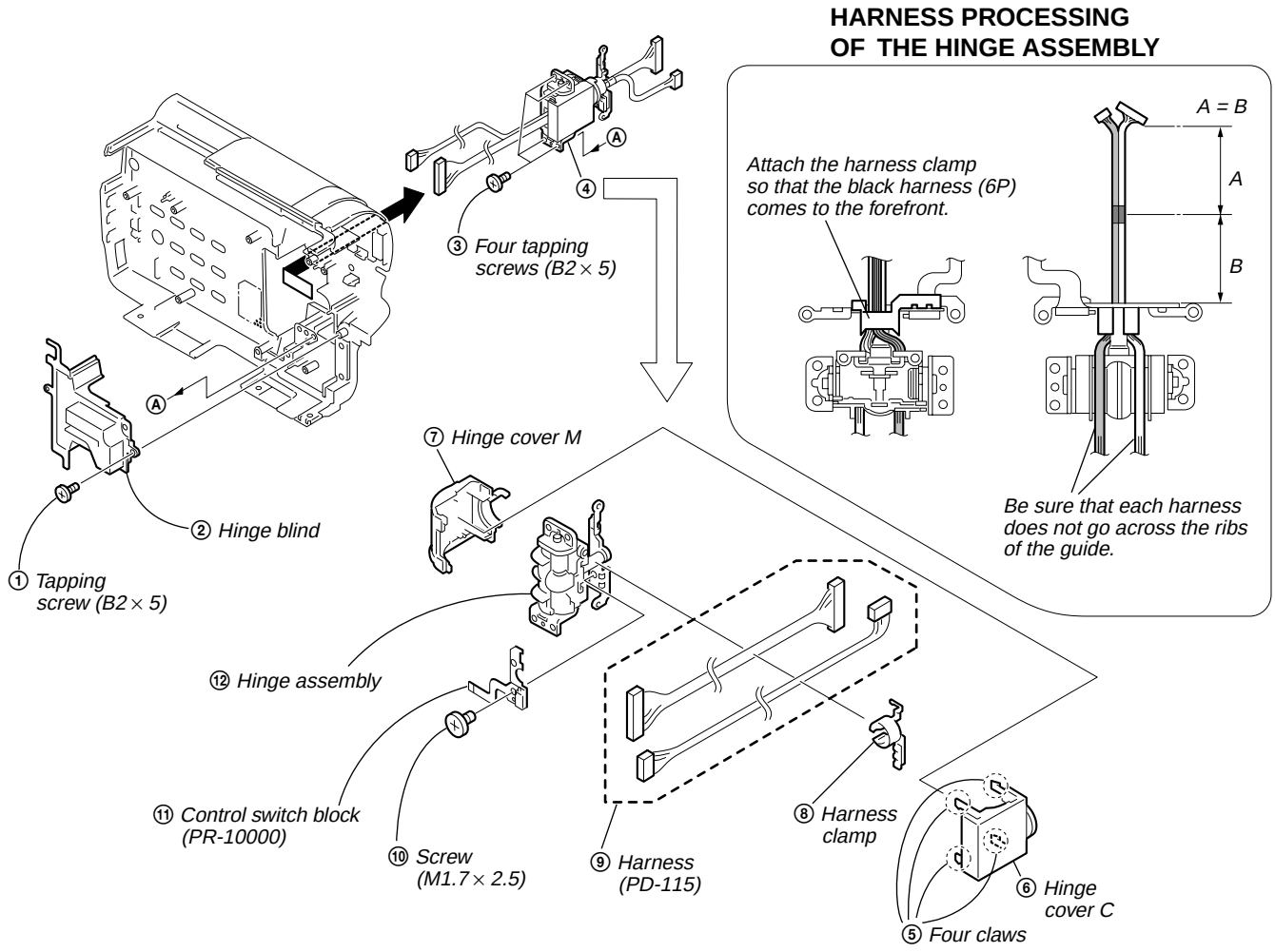


2-12. MECHANISM DECK

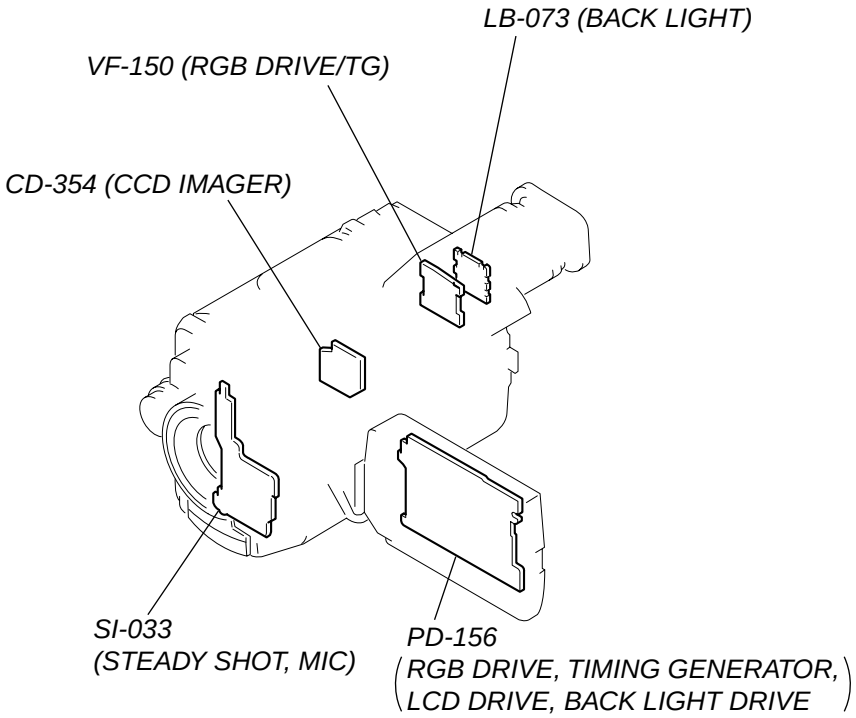


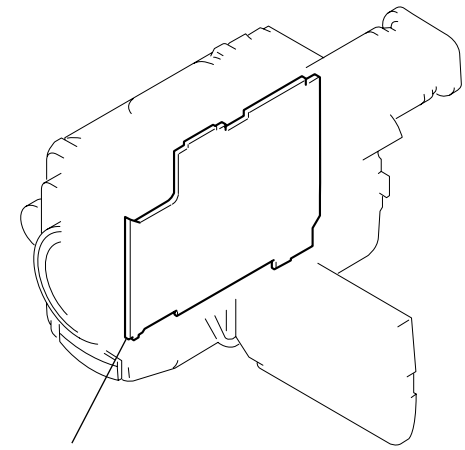
2-13. HINGE ASSEMBLY

(Remove the LCD unit reffering to section 2-2 before starting disassembly.)


HARNESS PROCESSING OF THE HINGE ASSEMBLY
A = B
A
B
Attach the harness clamp so that the black harness (6P) comes to the forefront.
Be sure that each harness does not go across the ribs of the guide.
③ Four tapping screws (B2 × 5)
④
Ⓐ
⑦ Hinge cover M
② Hinge blind
① Tapping screw (B2 × 5)
⑫ Hinge assembly
⑪ Control switch block (PR-10000)
⑩ Screw (M1.7 × 2.5)
⑨ Harness (PD-115)
⑧ Harness clamp
⑥ Hinge cover C
⑤ Four claws

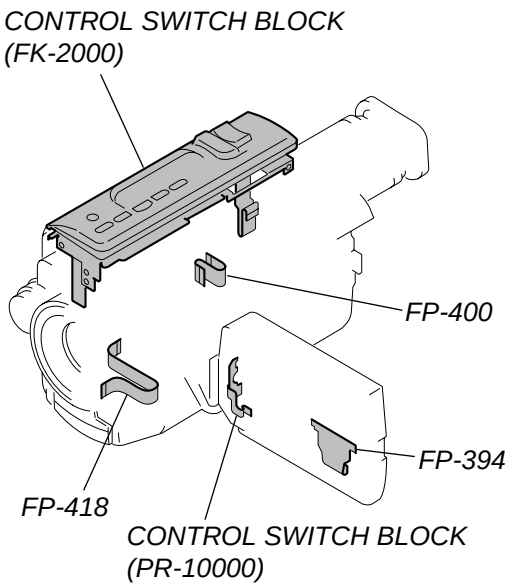
2-14. CIRCUIT BOARDS LOCATION

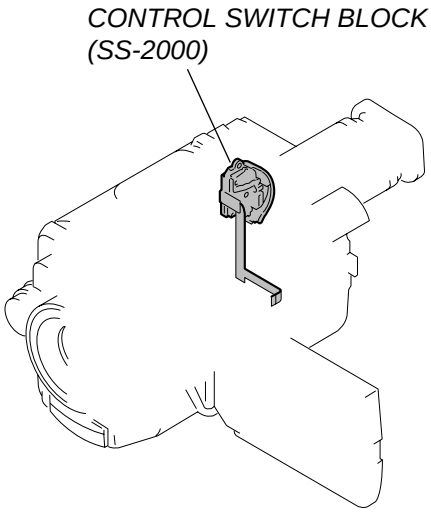


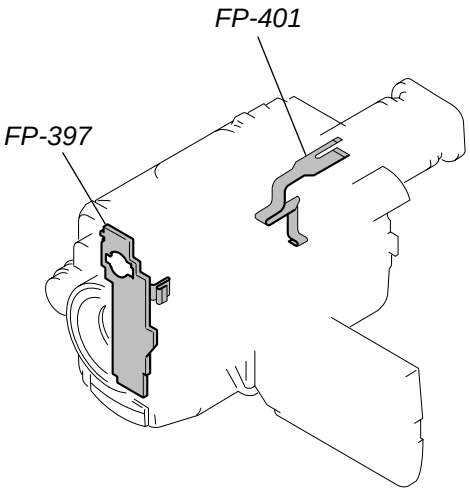


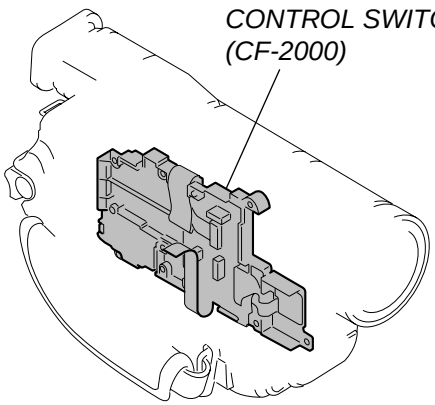
2-15. FLEXIBLE BOARDS LOCATION

The flexible boards contained in the mechanism deck are not shown.





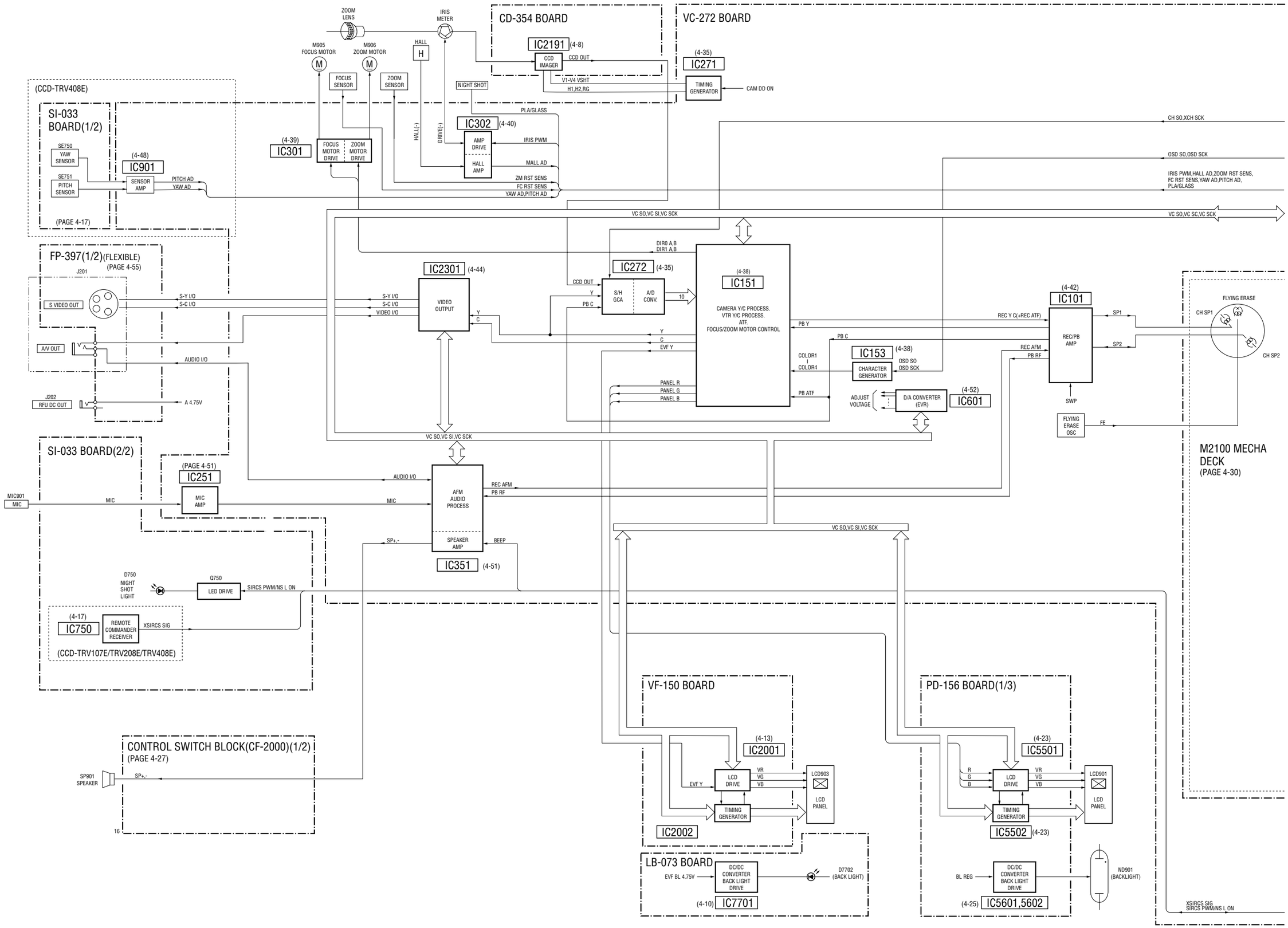




SECTION 3
BLOCK DIAGRAMS

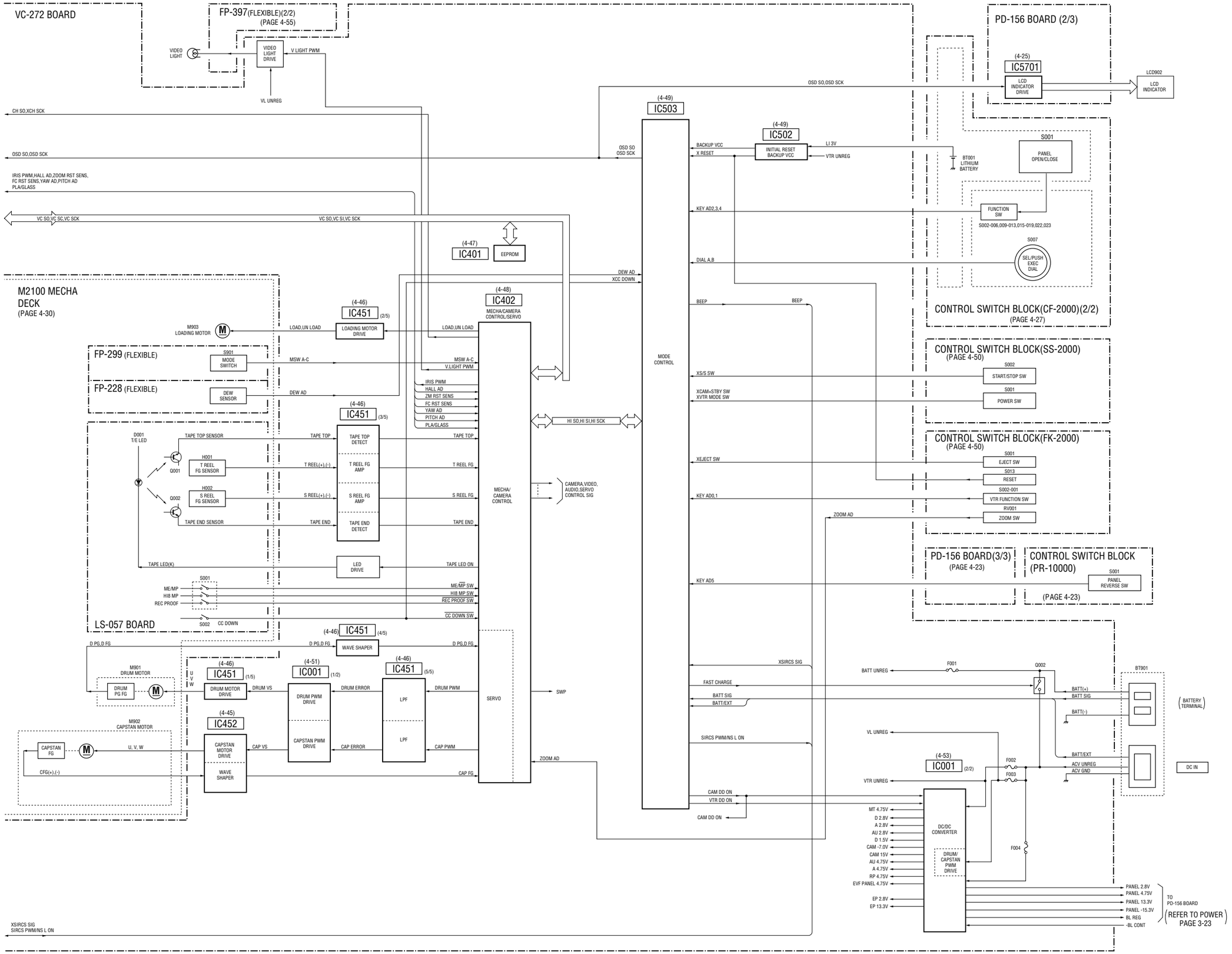
3-1. OVERALL BLOCK DIAGRAM (1/2)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.



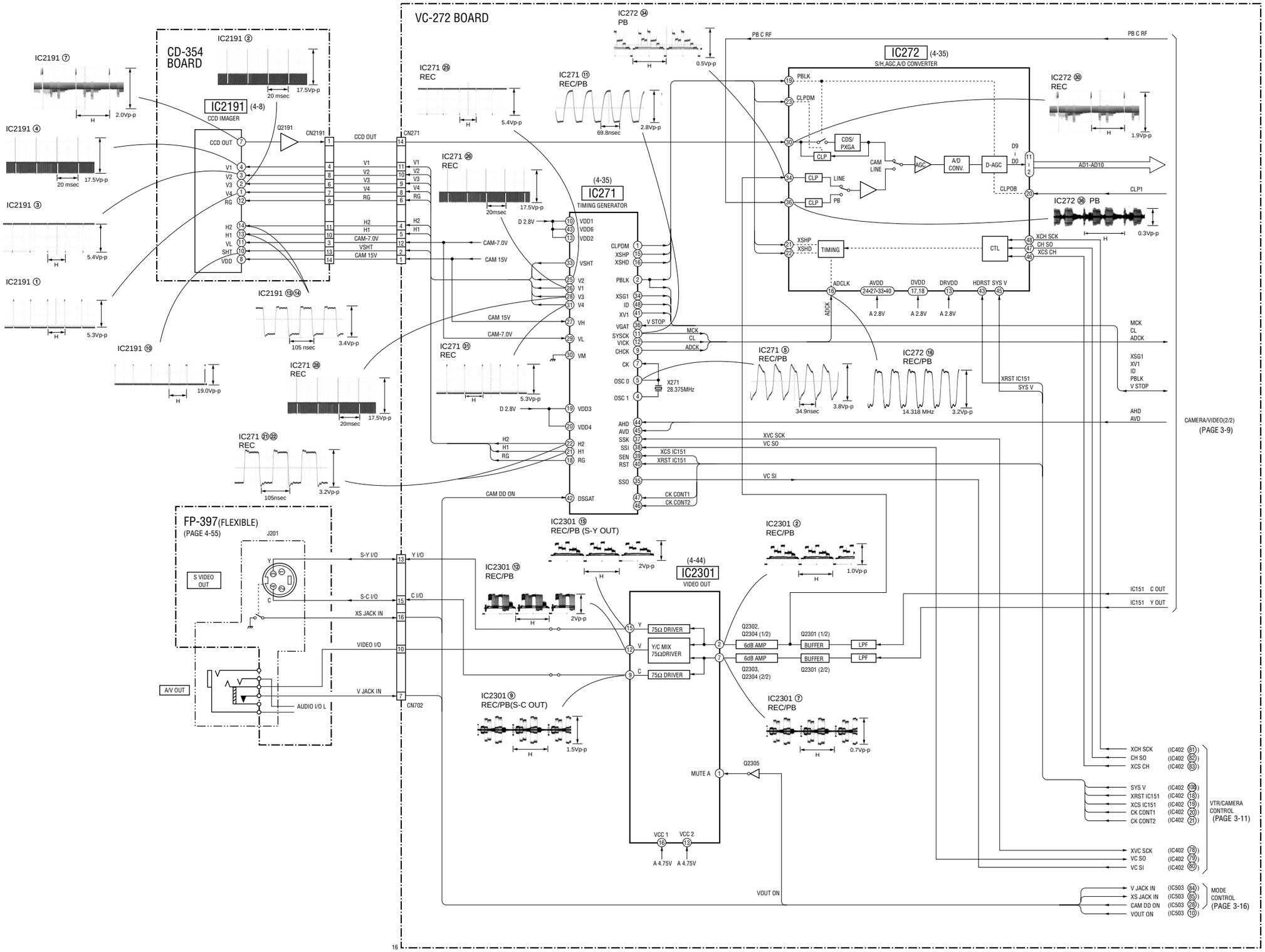
3-2. OVERALL BLOCK DIAGRAM (2/2)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.



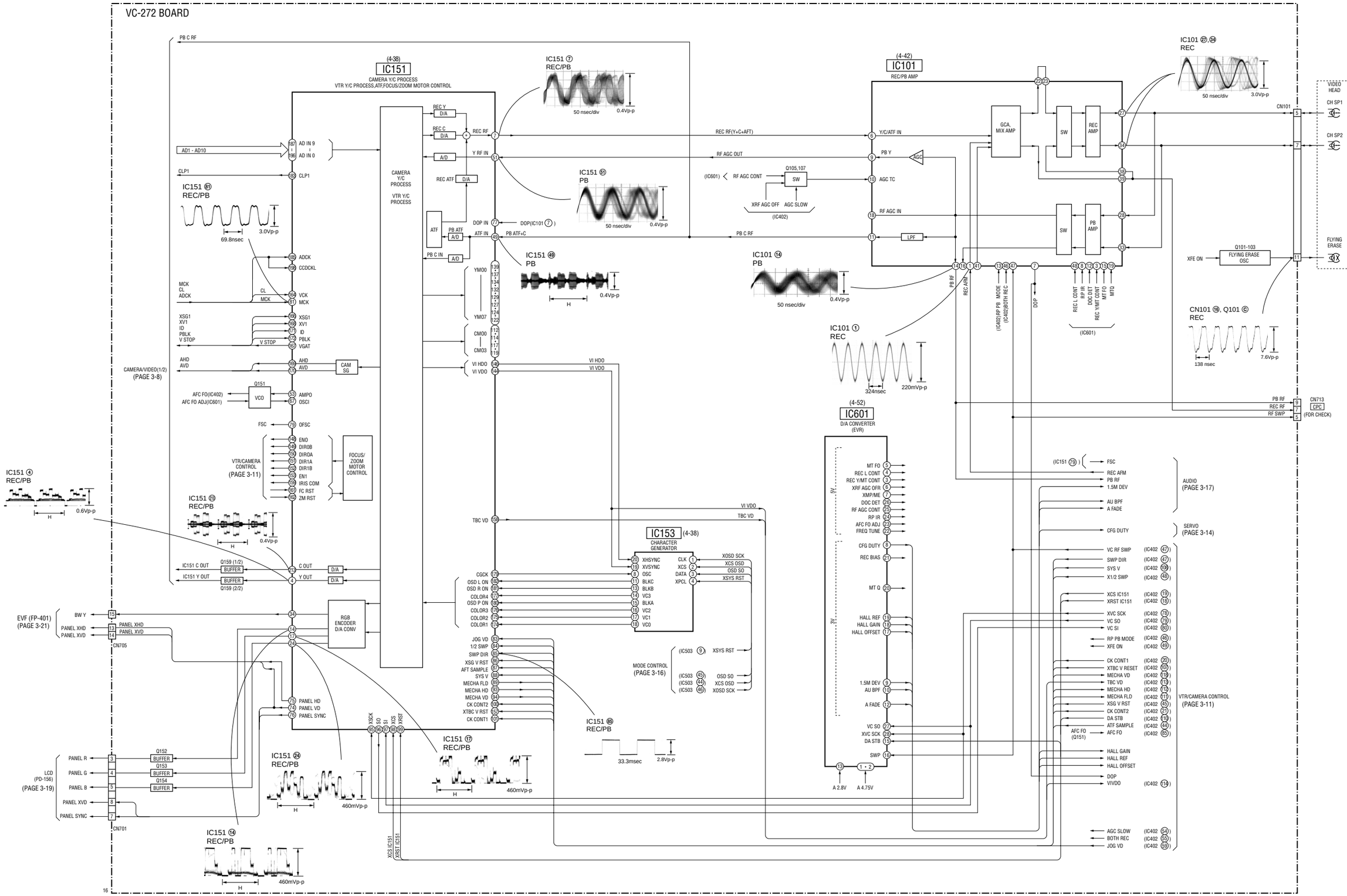
3-3. CAMERA/VIDEO BLOCK DIAGRAM (1/2)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.



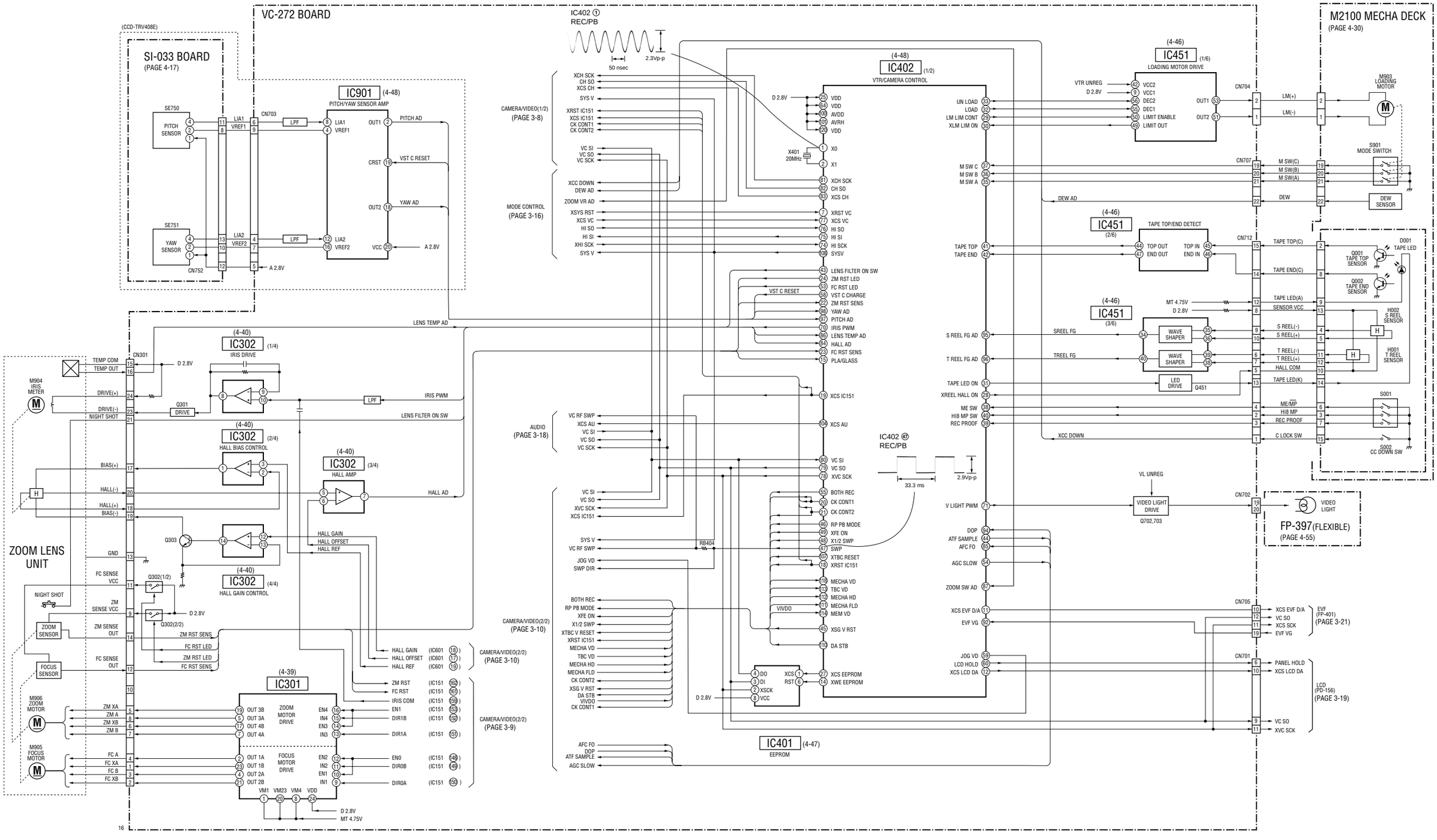
3-4. CAMERA/VIDEO BLOCK DIAGRAM (2/2)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-272 BOARD
IC151
CAMERA Y/C PROCESS
VTR Y/C PROCESS,ATF,FOCUS/ZOOM MOTOR CONTROL
IC101
REC/PB AMP
IC153
CHARACTER GENERATOR
IC601
D/A CONVERTER (EVR)
CAMERA/VIDEO(1/2) (PAGE 3-8)
VTR/CAMERA CONTROL (PAGE 3-11)
FOCUS/ ZOOM MOTOR CONTROL
RGB ENCODER D/A CONV
EVF (FP-401) (PAGE 3-21)
LCD (PD-156) (PAGE 3-19)
MODE CONTROL (PAGE 3-16)
AUDIO (PAGE 3-17)
SERVO (PAGE 3-14)
VTR/CAMERA CONTROL (PAGE 3-11)
VIDEO HEAD
CN101
CN705
CN701
CN713
(FOR CHECK)
PB C RF
REC RF(Y+C+AFT)
RF AGC OUT
PB C RF
REC Y
REC C
REC RF
Y RF IN
REC ATF
DOP IN
ATF IN
PB ATF+C
PB C IN
PB ATF
ATF
A/D
D/A
AD1 - AD10
CLP1
ADCK
CCDCKL
MCK
VCK
XSG1
XV1
ID
PBLK
VGAT
V STOP
AHD
AVD
CAM SG
AMPO
OSCI
OFSC
FSC
ENO
DIR0B
DIR0A
DIR1A
DIR1B
EN1
IRIS COM
FC RST
ZM RST
C OUT
Y OUT
IC151 C OUT
IC151 Y OUT
Q159 (1/2)
Q159 (2/2)
BUFFER
BW Y
PANEL XHD
PANEL XVD
PANEL HD
PANEL VD
PANEL SYNC
PANEL R
PANEL G
PANEL B
Q152
Q153
Q154
YM00
YM07
CM00
CM03
VI HDO
VI VDO
TBC VD
CGCK
OSD L ON
OSD R ON
COLOR4
COLOR3
COLOR2
COLOR1
JOG VD
1/2 SWP
SWP DIR
XSG V RST
AFT SAMPLE
SYS V
MECHA FLD
MECHA HD
MECHA VD
CK CONT2
XTBC V RST
CK CONT1
XSCK
SO
SI
XCS
XRST
XCS IC151
XRST IC151
Y/C/ATF IN
PB Y
AGC TC
RF AGC IN
LPF
AGC
GCA, MIX AMP
SW
REC AMP
PB AMP
Q105,107
RF AGC CONT
XRF AGC OFF
AGC SLOW
(IC402)
(IC601)
PB RF
REC AFM
MODE
DOP
REC L CONT
RP IR
DOC DET
REC YMT CONT
MT FO
MT Q
HALL REF
HALL GAIN
HALL OFFSET
CFG DUTY
REC BIAS
1.5M DEV
AU BPF
A FADE
VC SO
XVC SCK
DA STB
SWP
A 2.8V
A 4.75V
XHSYNC
XVSYNC
OSC
BLKC
BLKB
VC3
BLKA
VC2
VC1
VC0
CLK
XCS
DATA
XPCL
XOSD SCK
XCS OSD
OSD SO
XSYS RST
XSYS RST
OSD SO
XCS OSD
XOSD SCK
1.5M DEV
REC AFM
PB RF
REC RF
RF SWP
FSC
CFG DUTY
VC RF SWP
SWP DIR
SYS V
X1/2 SWP
XCS IC151
XRST IC151
XVC SCK
VC SO
VC SI
RP PB MODE
XFE ON
CK CONT1
XTBC V RESET
MECHA VD
TBC VD
MECHA HD
MECHA FLD
XSG V RST
CK CONT2
DA STB
ATF SAMPLE
AFC FO
HALL GAIN
HALL REF
HALL OFFSET
DOP
VIVDO
AGC SLOW
BOTH REC
JOG VD
FLYING ERASE
Q101-103
FLYING ERASE OSC
XFE ON
IC151 ⑦ REC/PB
IC151 ⑤① REC/PB
IC151 ⑤① PB
IC151 ④⑨ PB
IC101 ⑭ PB
IC101 ㉗,㉞ REC
IC101 ① REC
CN101 ⑯, Q101 Ⓒ REC
IC151 ④ REC/PB
IC151 ⑦⑧ REC/PB
IC151 ⑭ REC/PB
IC151 ㉔ REC/PB
IC151 ⑰ REC/PB
IC151 ⑥⑤ REC/PB
50 nsec/div
0.4Vp-p
3.0Vp-p
69.8nsec
0.6Vp-p
H
33.3msec
2.8Vp-p
460mVp-p
324nsec
220mVp-p
138 nsec
7.6Vp-p
(4-38)
(4-42)
(4-52)
(IC151 ⑦⑧)
(IC503 ⑨)
(IC503 ㊺)
(IC503 ㊹)
(IC503 ㊻)
(IC402 ㊼)
(IC402 ㊽)
(IC402 ㊾)
(IC402 ⑭)
(IC402 ㊿)
(IC402 ㊿)
(IC402 ㊿

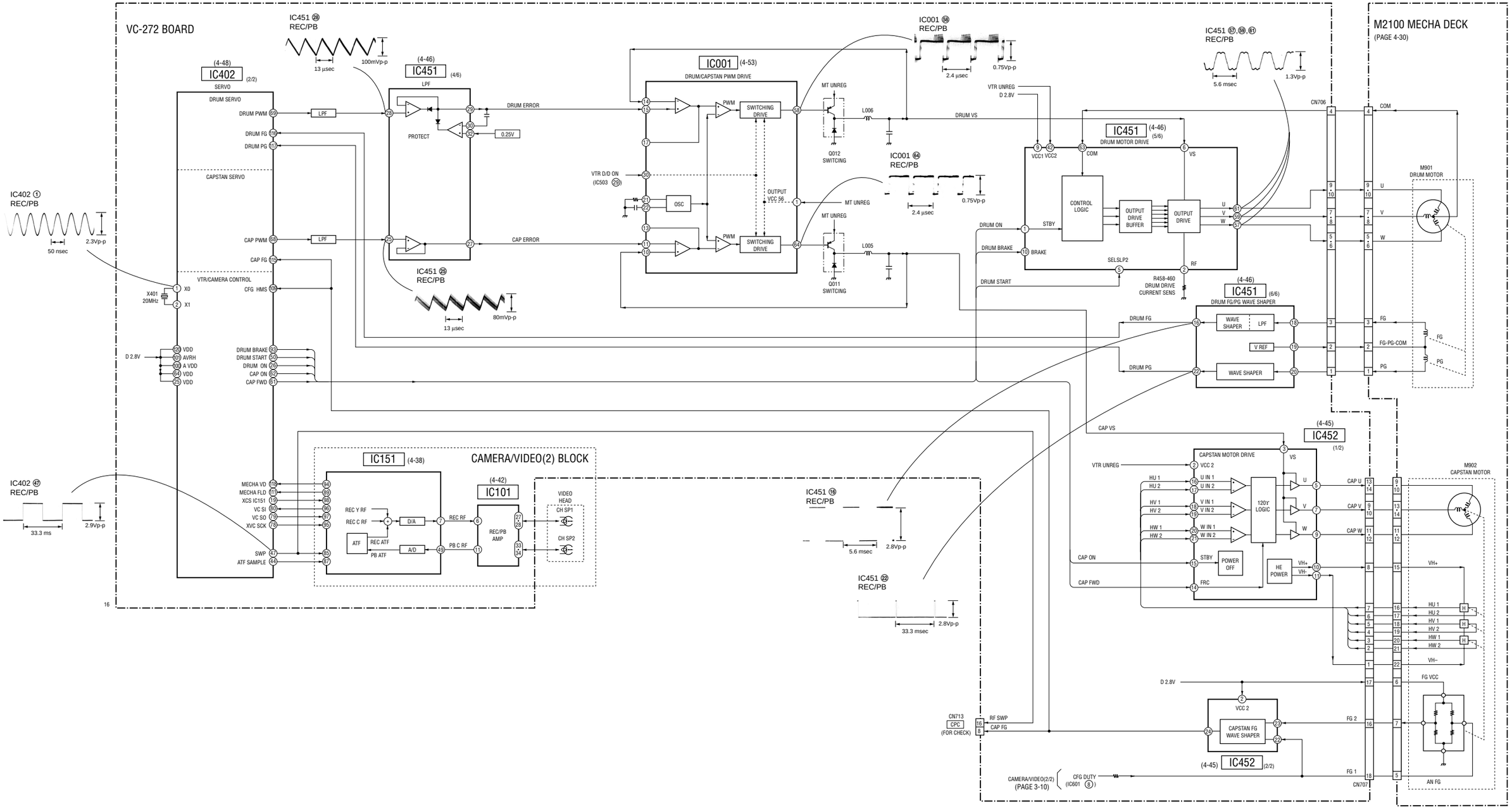
3-5. VTR/CAMERA CONTROL BLOCK DIAGRAM

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.

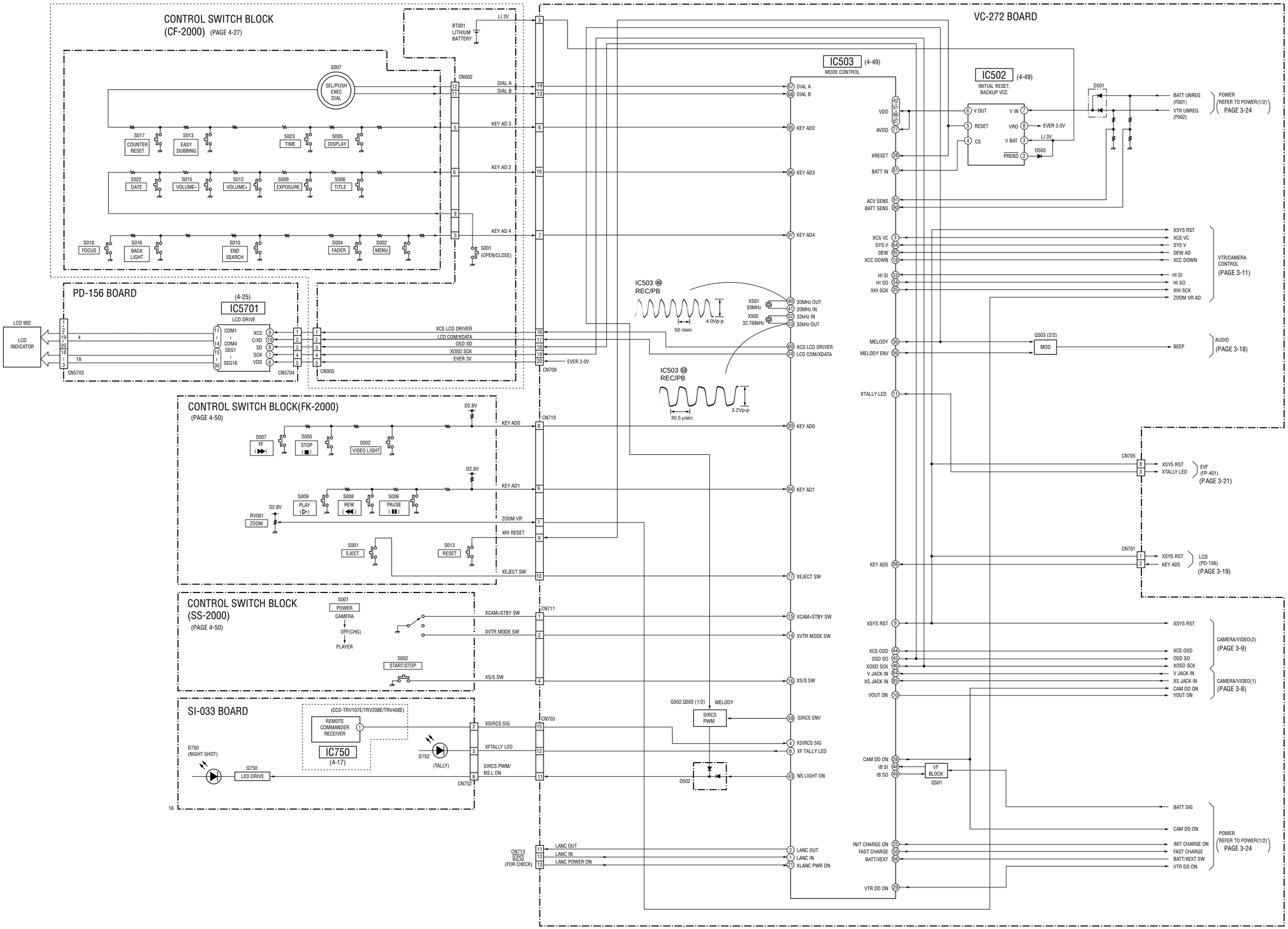


3-6. SERVO BLOCK DIAGRAM

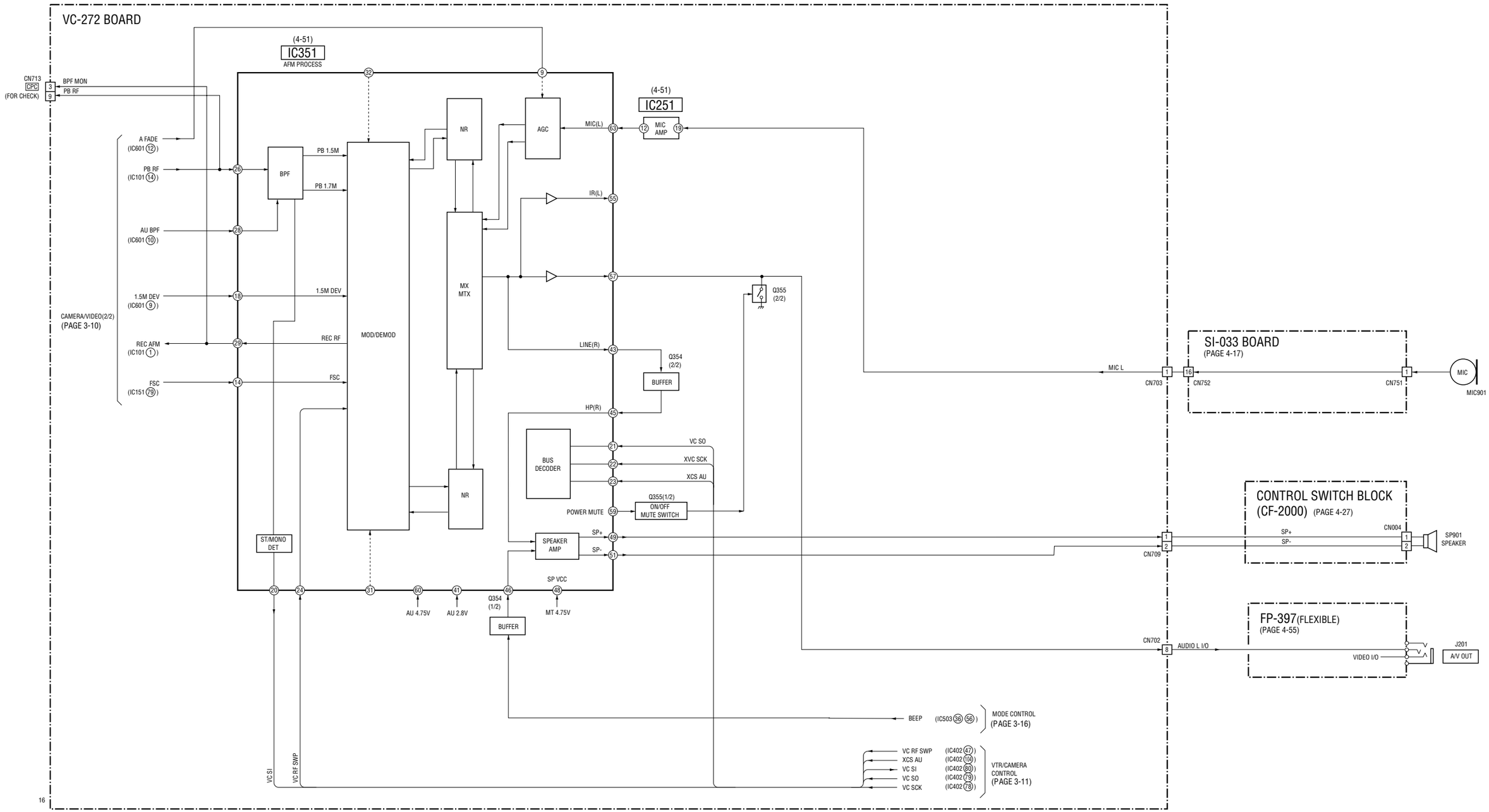
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.



3-7. MODE CONTROL BLOCK DIAGRAM ( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.

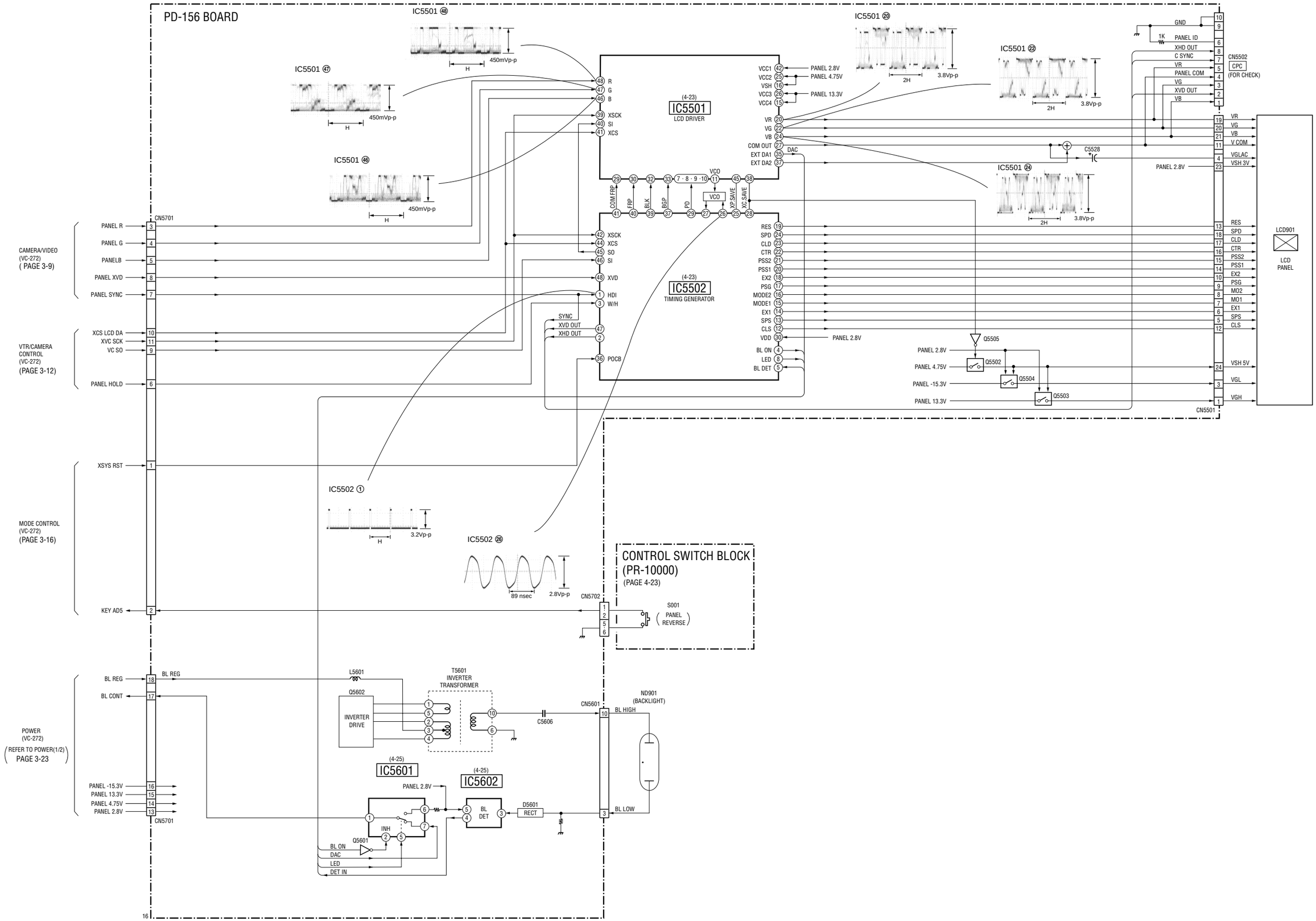


3-8. AUDIO BLOCK DIAGRAM ( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.



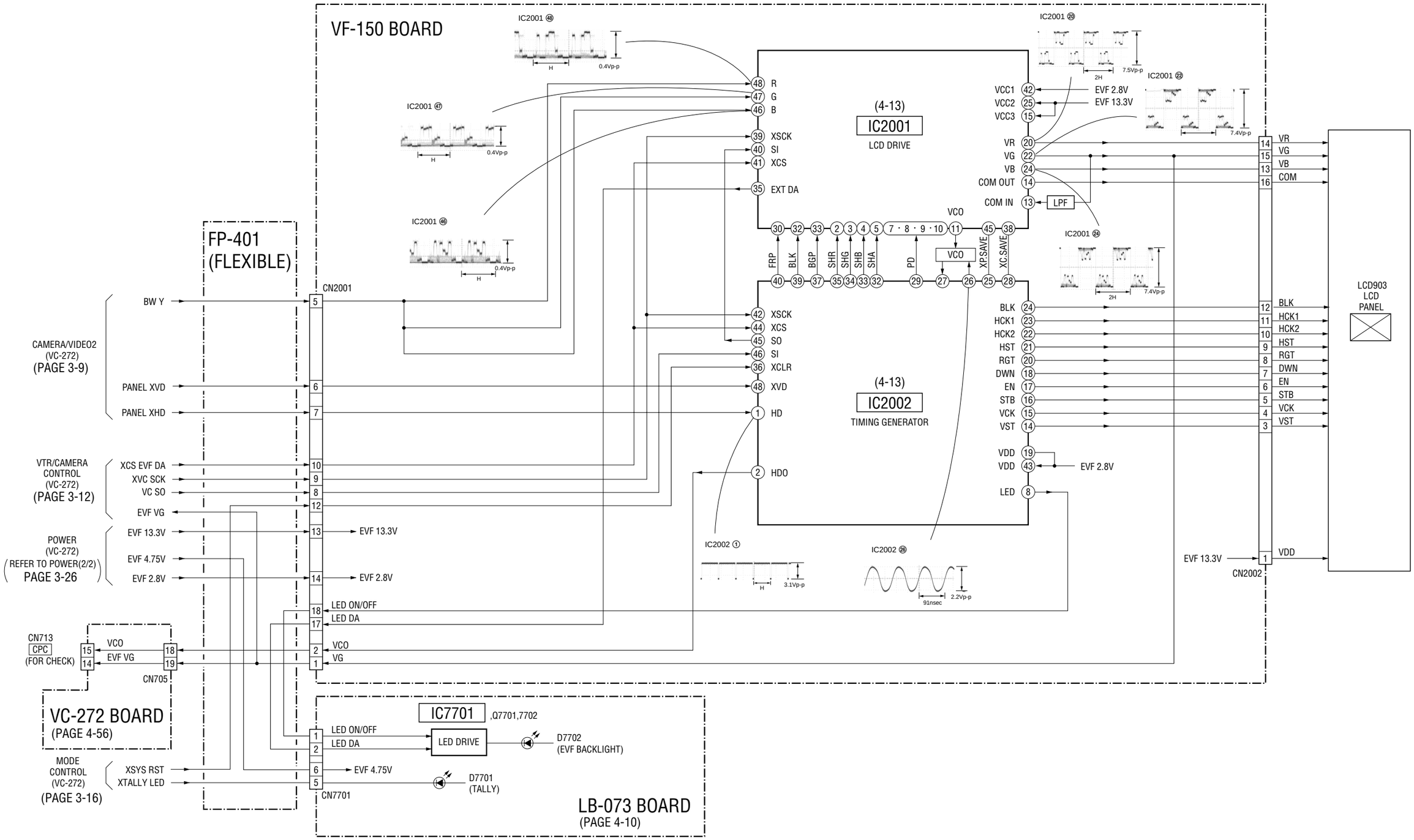
3-9. LCD BLOCK DIAGRAM

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.



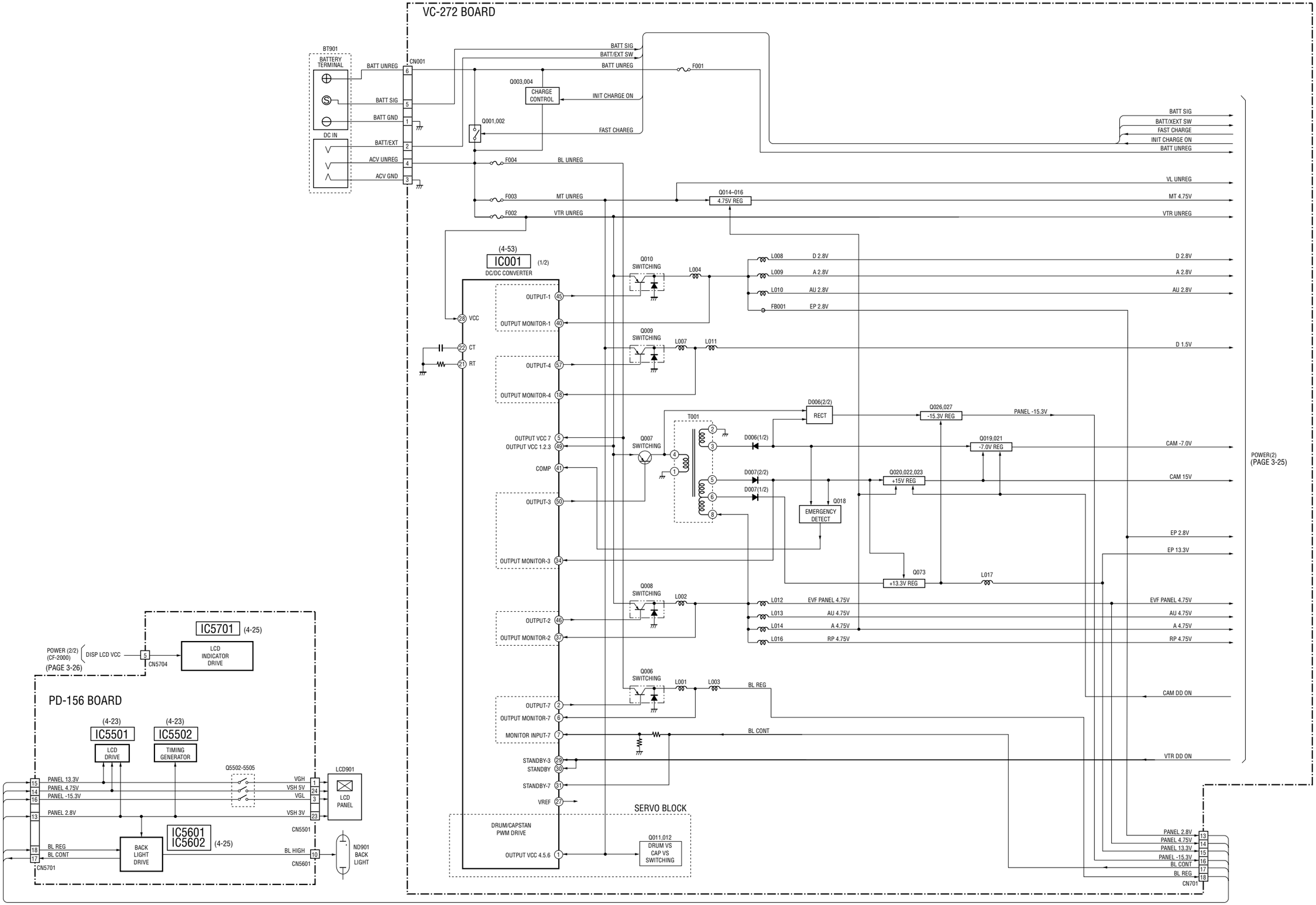
3-10. EVF BLOCK DIAGRAM

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.



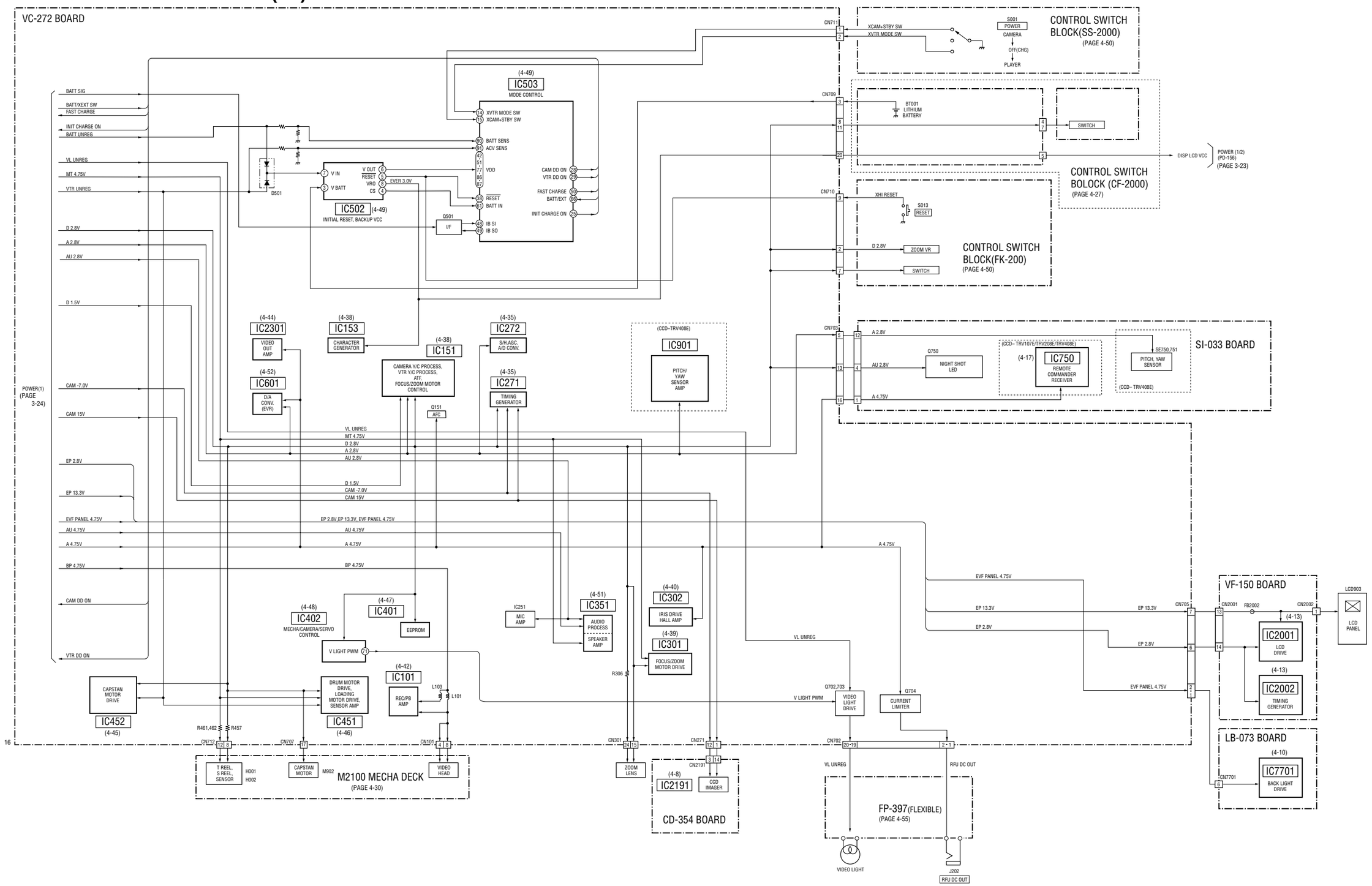
3-11. POWER BLOCK DIAGRAM (1/2)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.



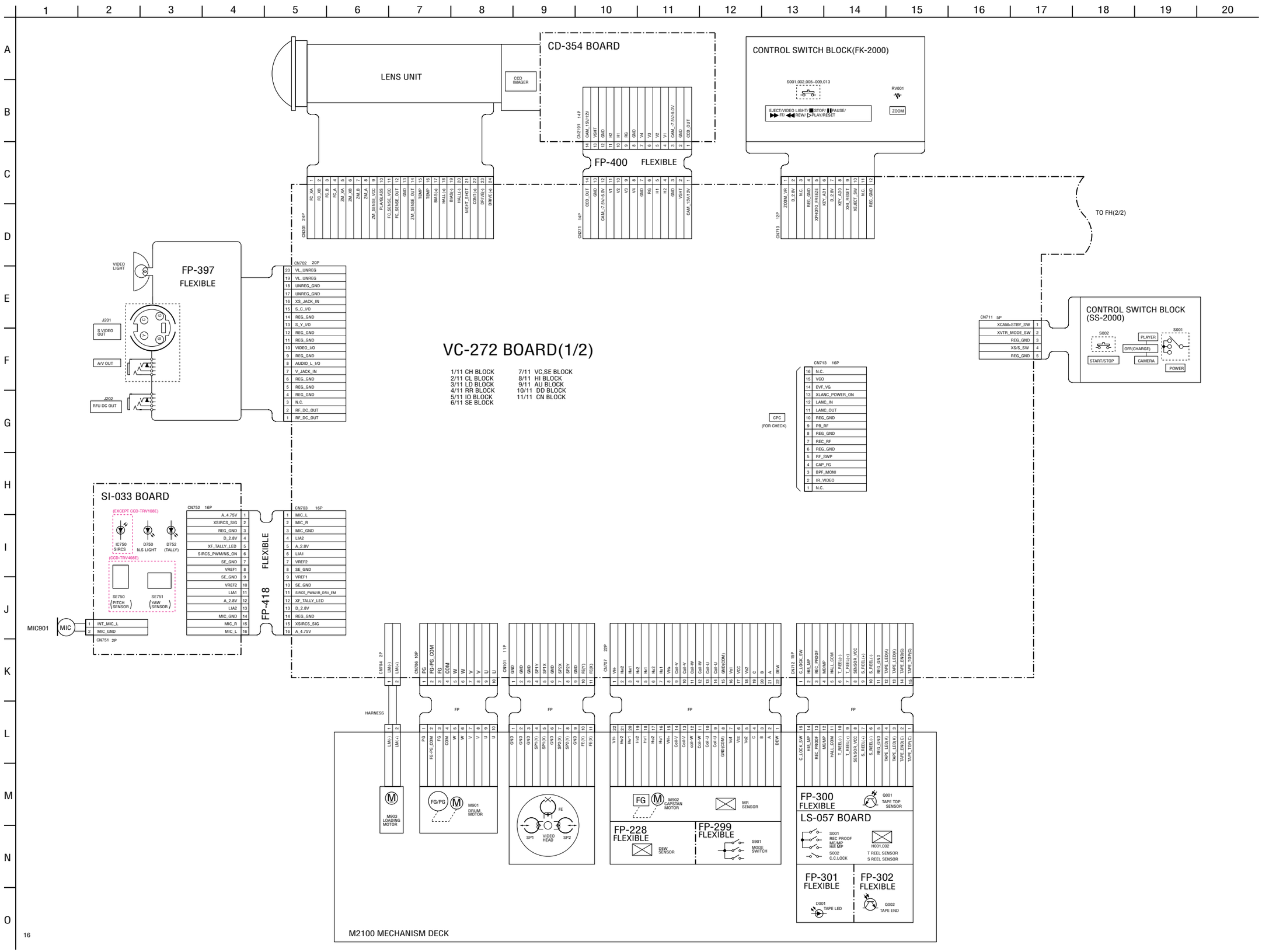
3-12. POWER BLOCK DIAGRAM (2/2)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.

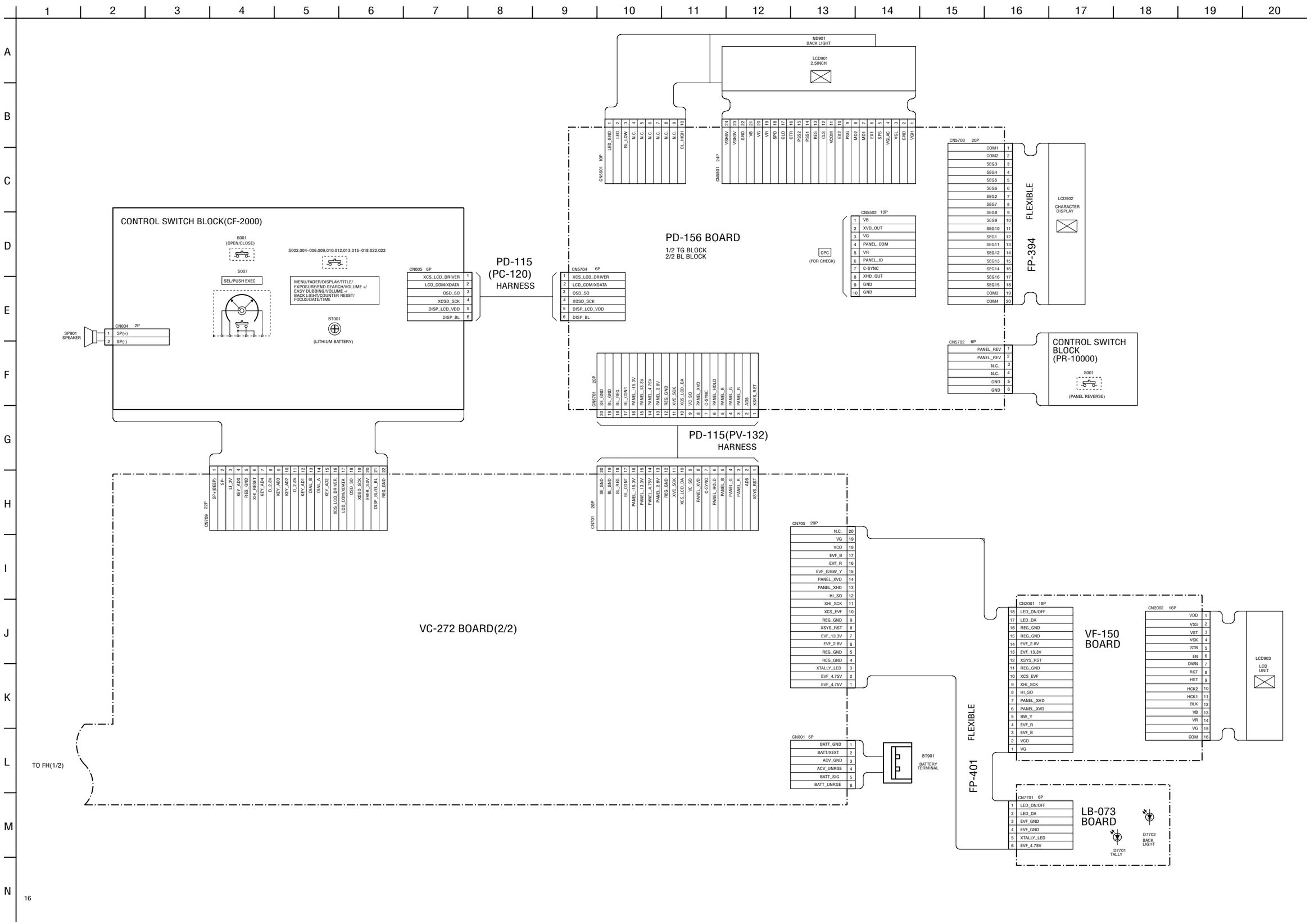


SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM (1/2)



FRAME SCHEMATIC DIAGRAM (2/2)

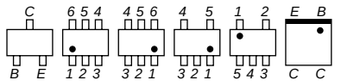


4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

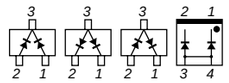
THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For printed wiring boards)
- ▒▒▒: Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.

Transistor



Diode



(For schematic diagrams)
- All capacitors are in μF unless otherwise noted. p: pF.
  50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10W unless otherwise noted.
  kΩ=1000Ω, MΩ=1000kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example	C541	L452
	22U	10UH
	TA A	2520

Kinds of capacitor
Temperature characteristics
External dimensions (mm)

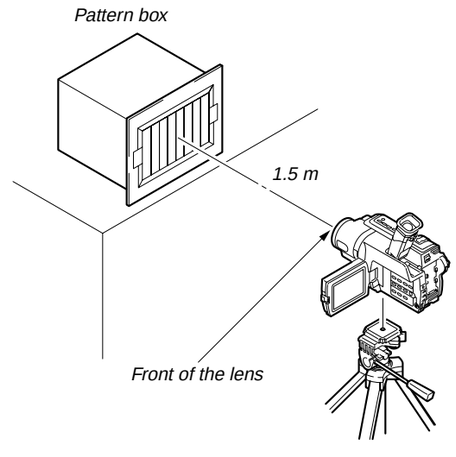
- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
  In such cases, the unused circuits may be indicated.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line *
- : B– Line *
- : IN/OUT direction of (+,–) B LINE. *
- : adjustment for repair. *
- Circled numbers refer to waveforms. *

* Indicated by the color red.

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(Measuring conditions voltage and waveform)
- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms. *
  (VOM of DC 10 MΩ input impedance is used.).
- Voltage values change depending upon input impedance of VOM used.) *

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

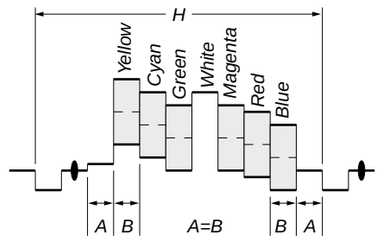


Fig. a (Video output terminal output waveform)

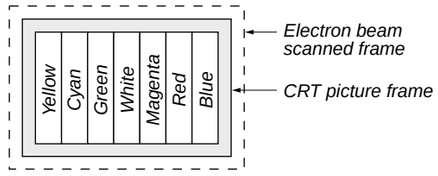
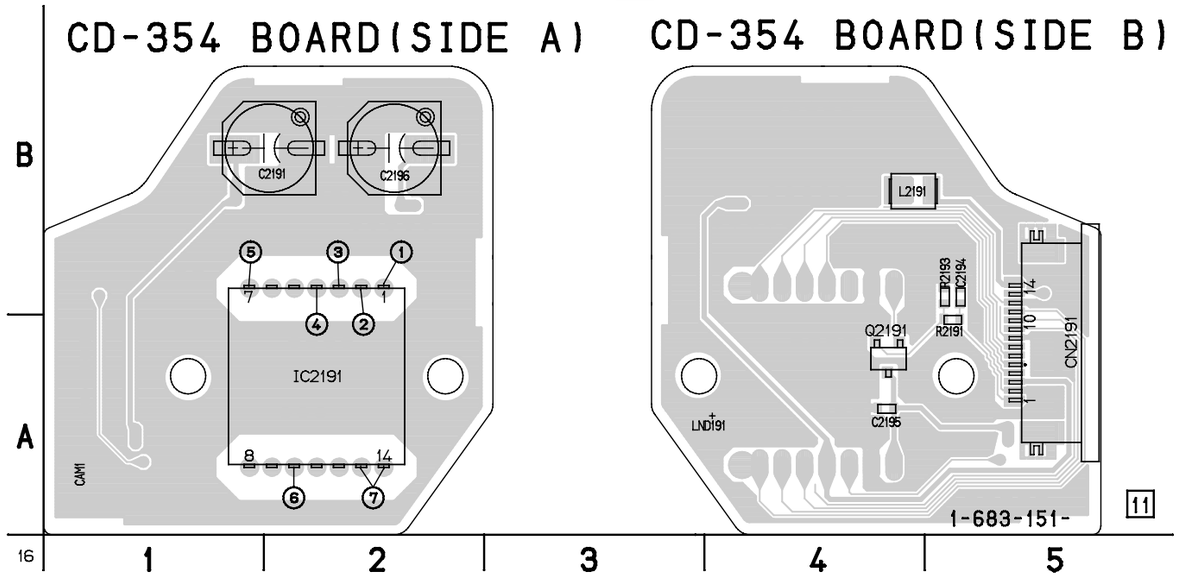


Fig.b (Picture on monitor TV)

When indicating parts by reference number, please include the board name.

CD-354 (CCD IMAGER) PRINTED WIRING BOARD

• : Uses unleaded solder.



For printed wiring board

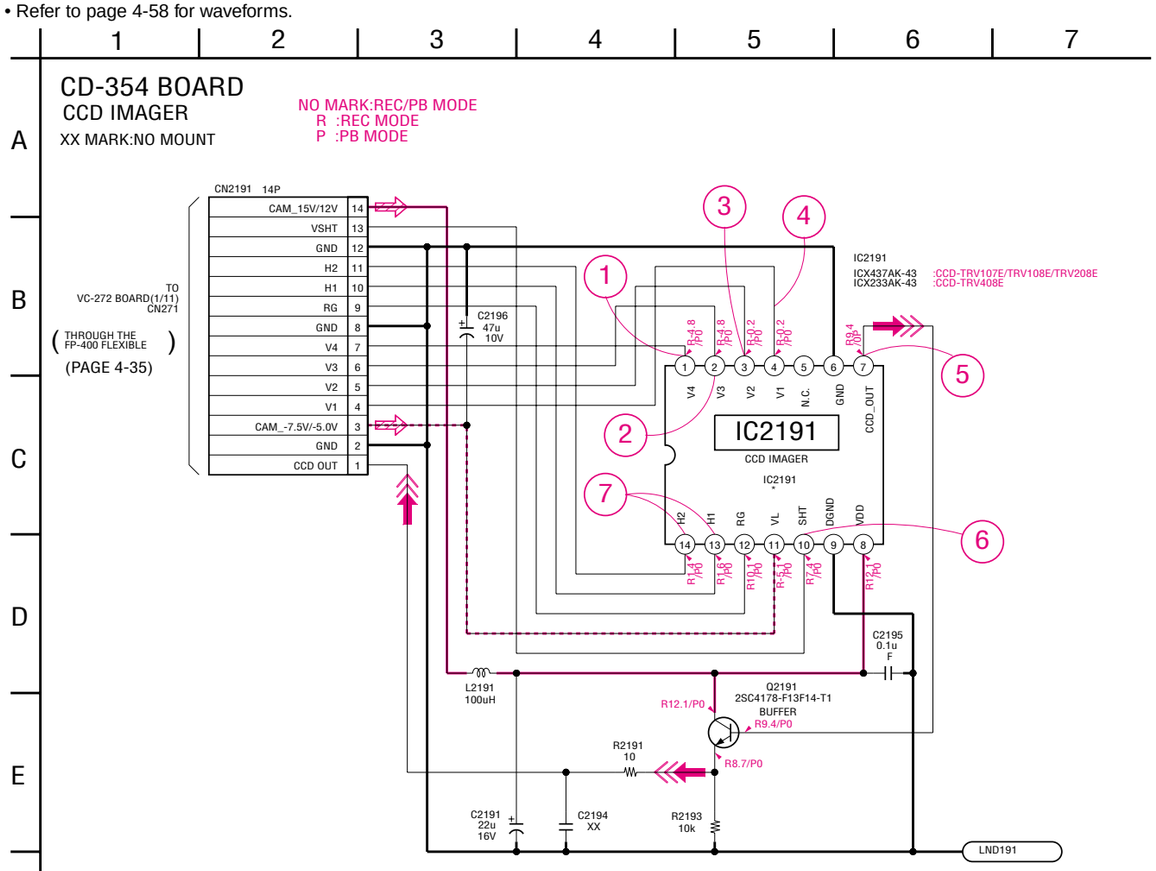
- Refer to page 4-61 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.
- Chip parts

Transistor

There are a few cases that the part printed on this diagram isn't mounted in this model.

For Schematic Diagram

• Refer to page 4-58 for waveforms.



Precautions Upon Replacing CCD imager

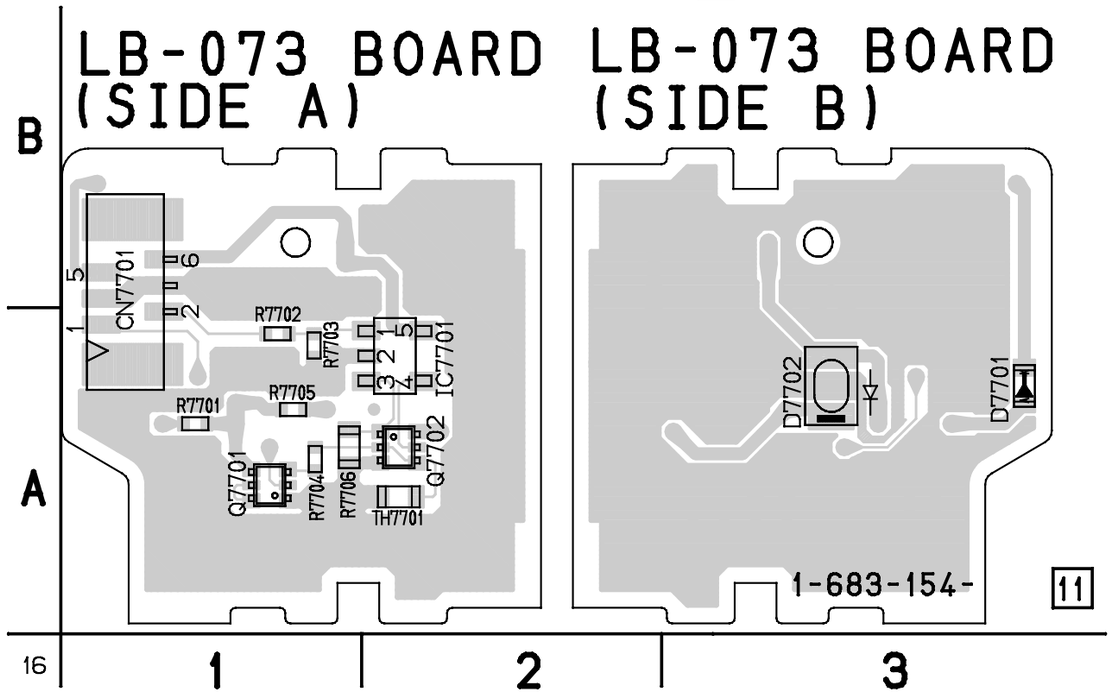
- The CD-354 board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			➡
PB			

LB-073 (BACK LIGHT (EVF)) PRINTED WIRING BOARD

• : Uses unleaded solder.

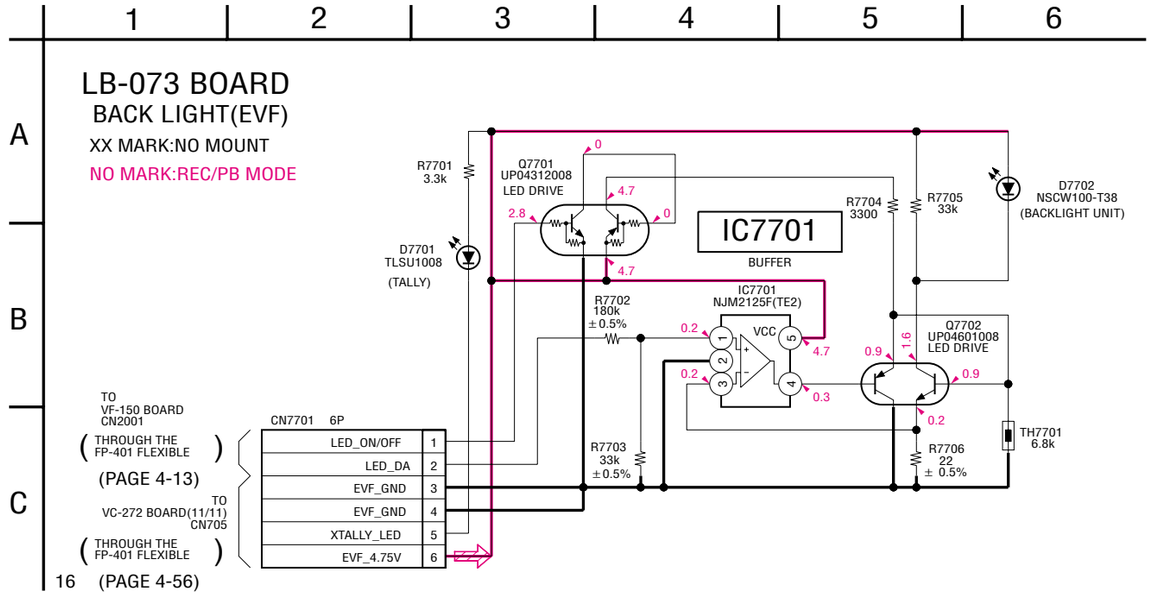


For printed wiring board

- Refer to page 4-61 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.
- Chip parts

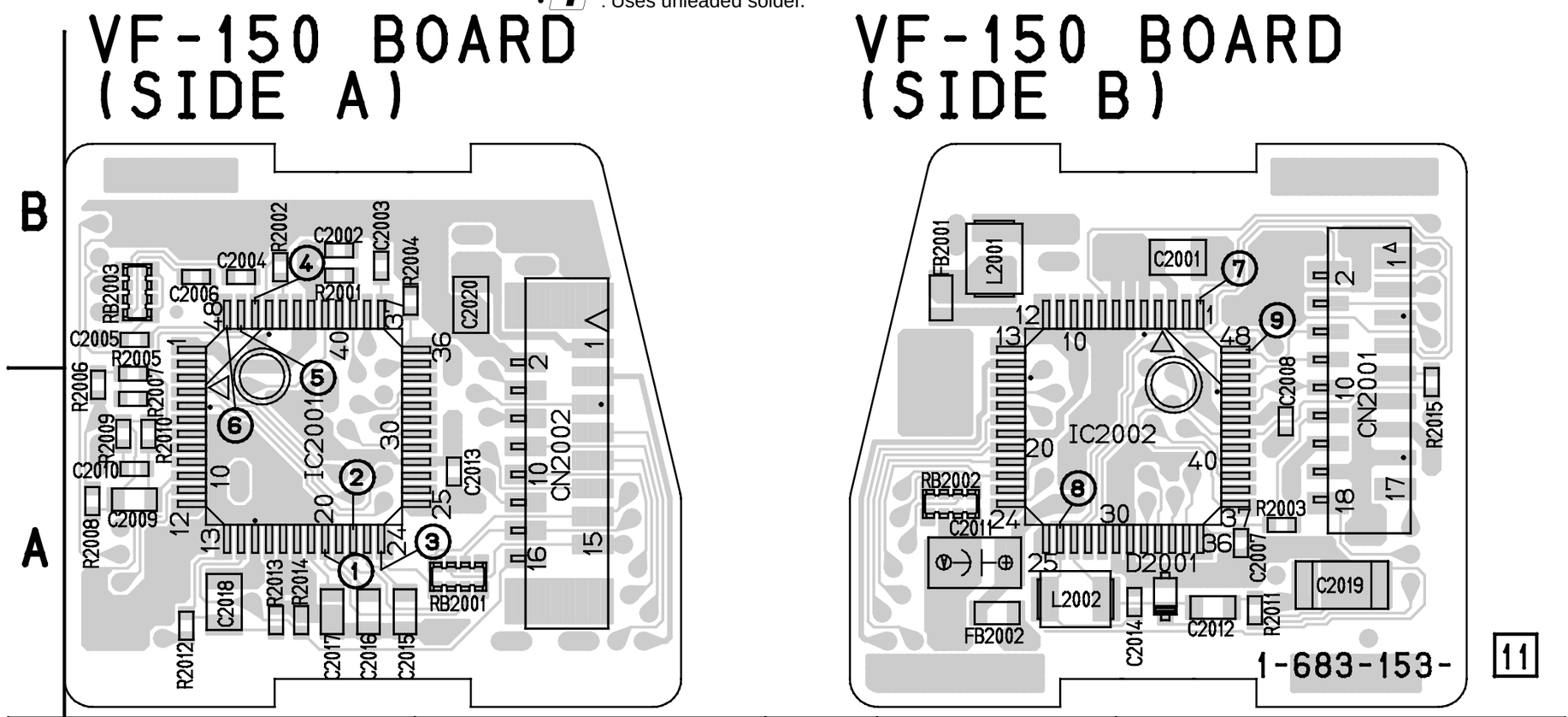
Transistor

There are a few cases that the part printed on this diagram isn't mounted in this model.



VF-150 (RGB DRIVE/TG) PRINTED WIRING BOARD

• : Uses unleaded solder.



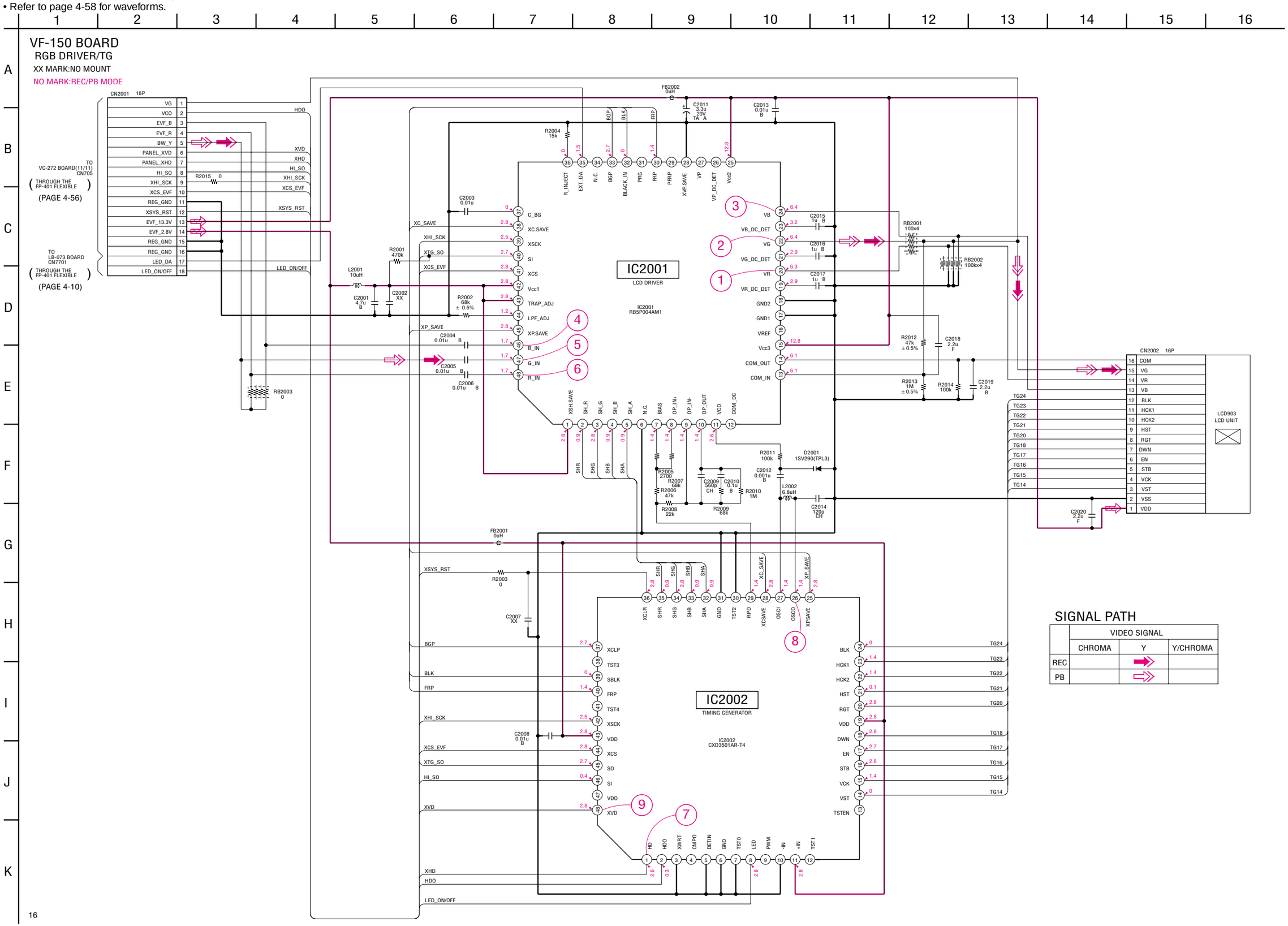
For printed wiring board

- Refer to page 4-61 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.

There are a few cases that the part printed on this diagram isn't mounted in this model.

For Schematic Diagram

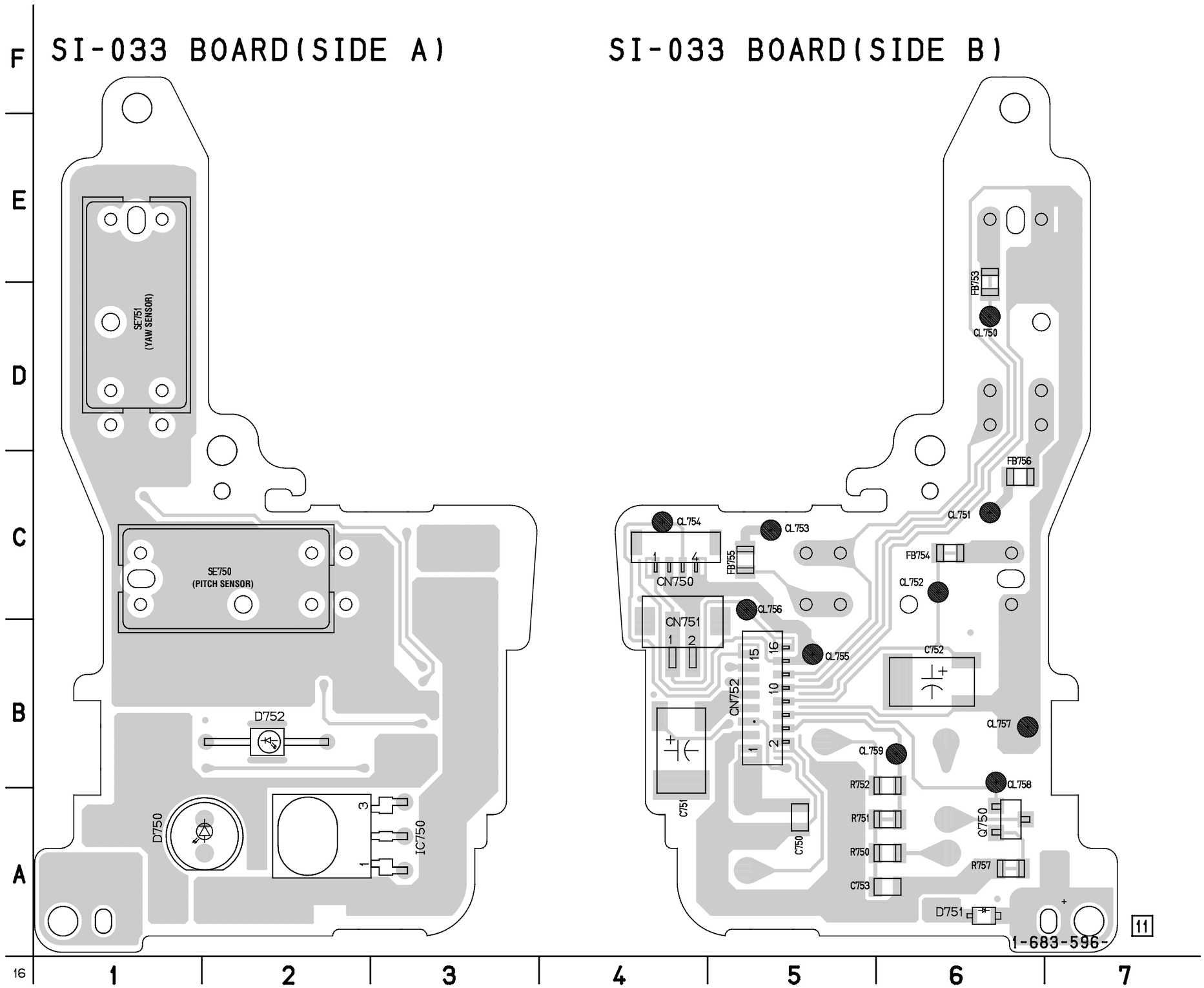
- Refer to page 4-11 for printed wiring board.
- Refer to page 4-58 for waveforms.



SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC		➡	
PB		⇨	

SI-033 (STEADY SHOT, MIC) PRINTED WIRING BOARD



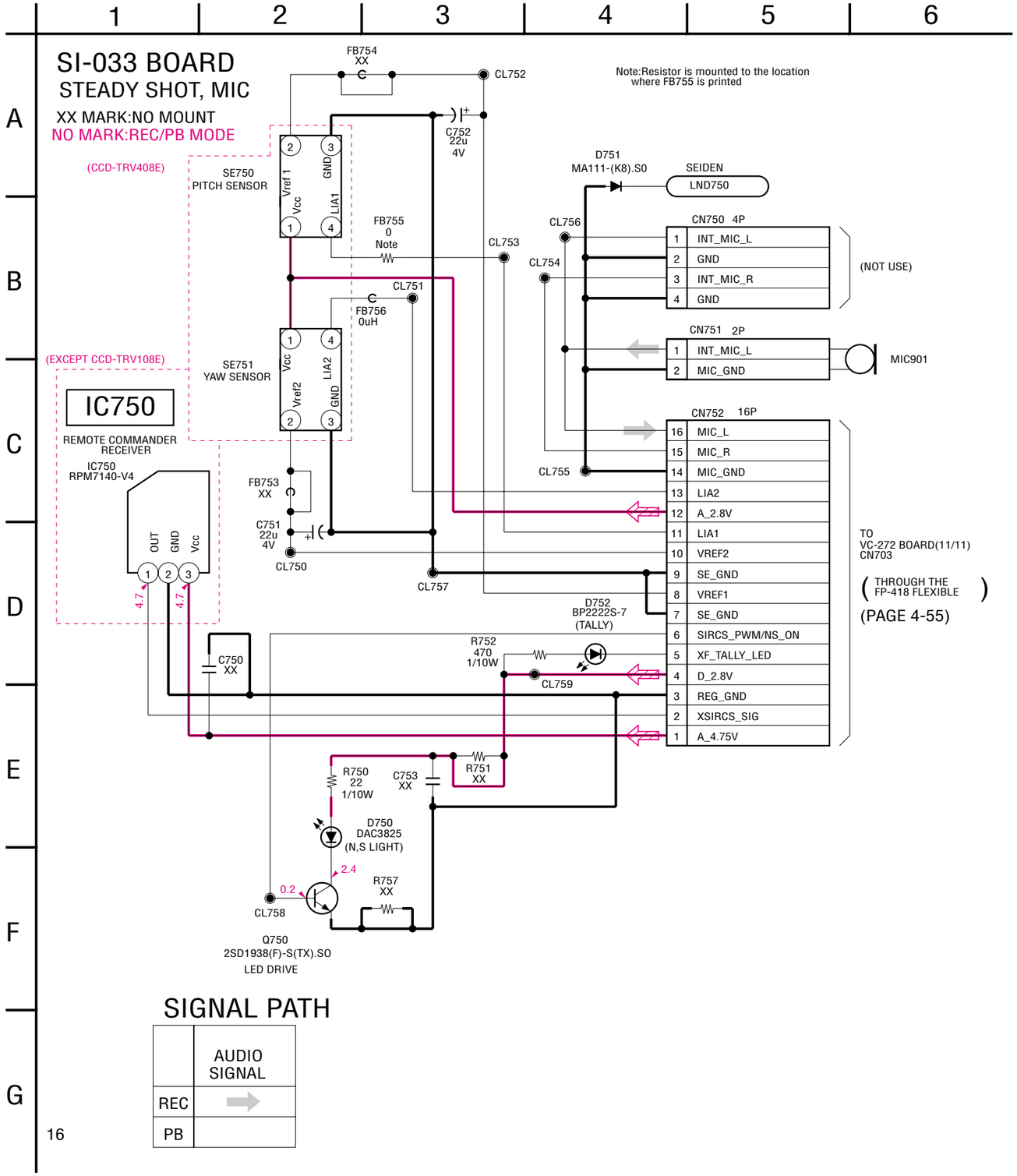
For printed wiring board
- Refer to page 4-61 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.
- Chip parts

Transistor

There are a few cases that the part printed on this diagram isn't mounted in this model.

For Schematic Diagram

• Refer to page 4-15 for printed wiring board.

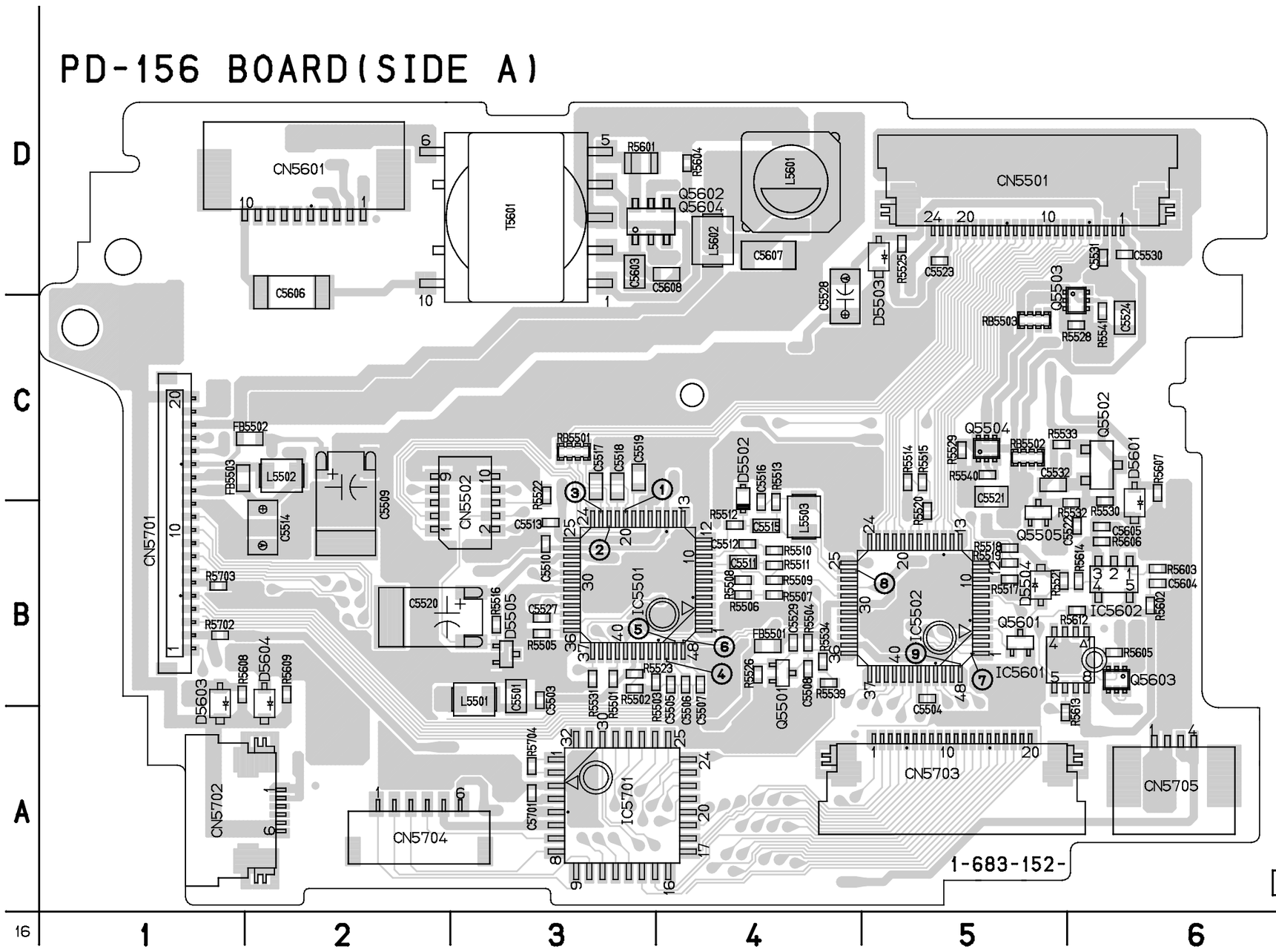


SIGNAL PATH

	AUDIO SIGNAL
REC	➡
PB	

PD-156 (RGB DRIVE, TIMING GENERATOR, LCD DRIVE, BACKLIGHT DRIVE) PRINTED WIRING BOARD

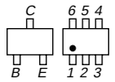
• : Uses unleaded solder.



For printed wiring board

- Refer to page 4-61 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.
- Chip parts

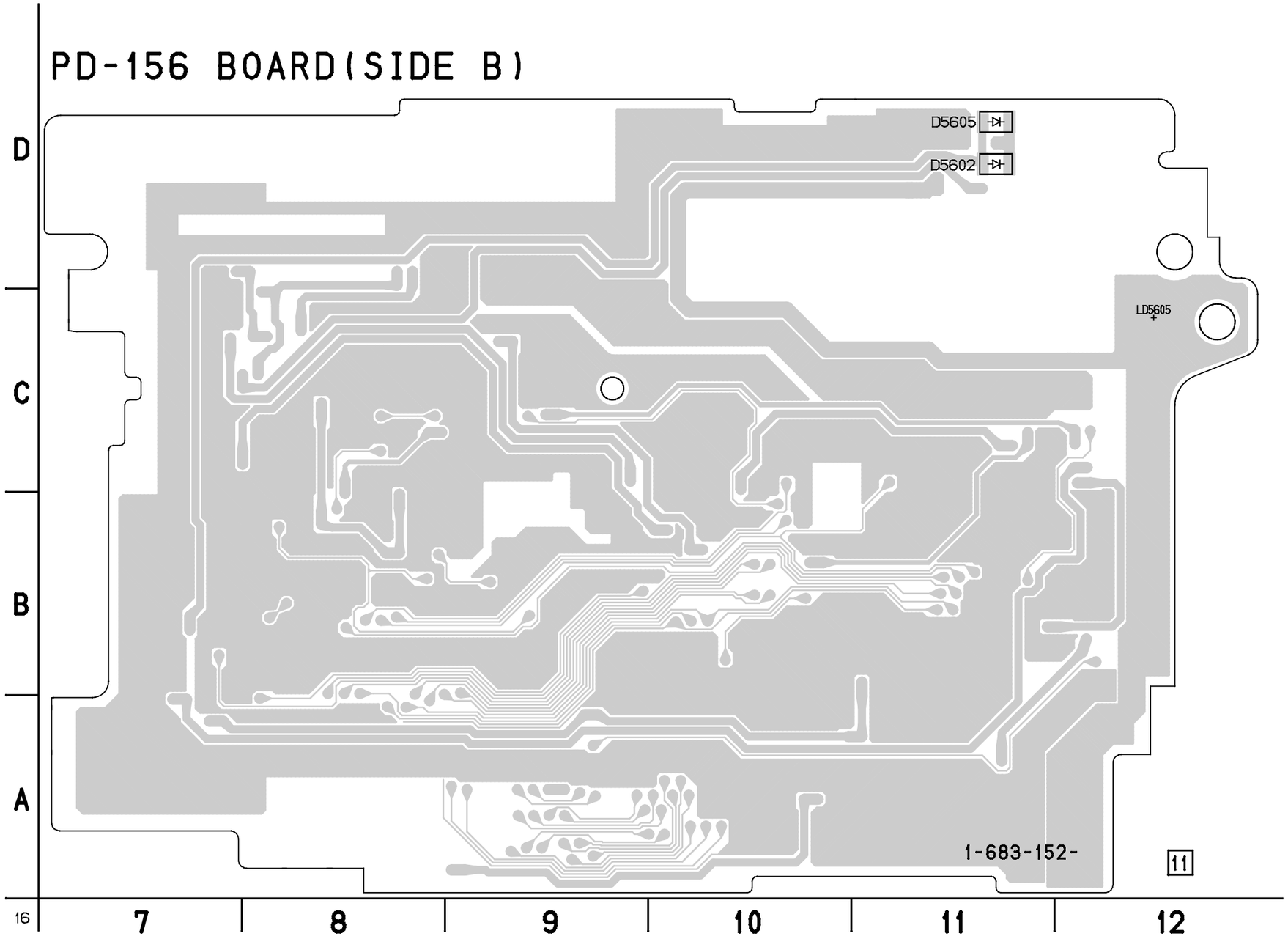
Transistor



Diode

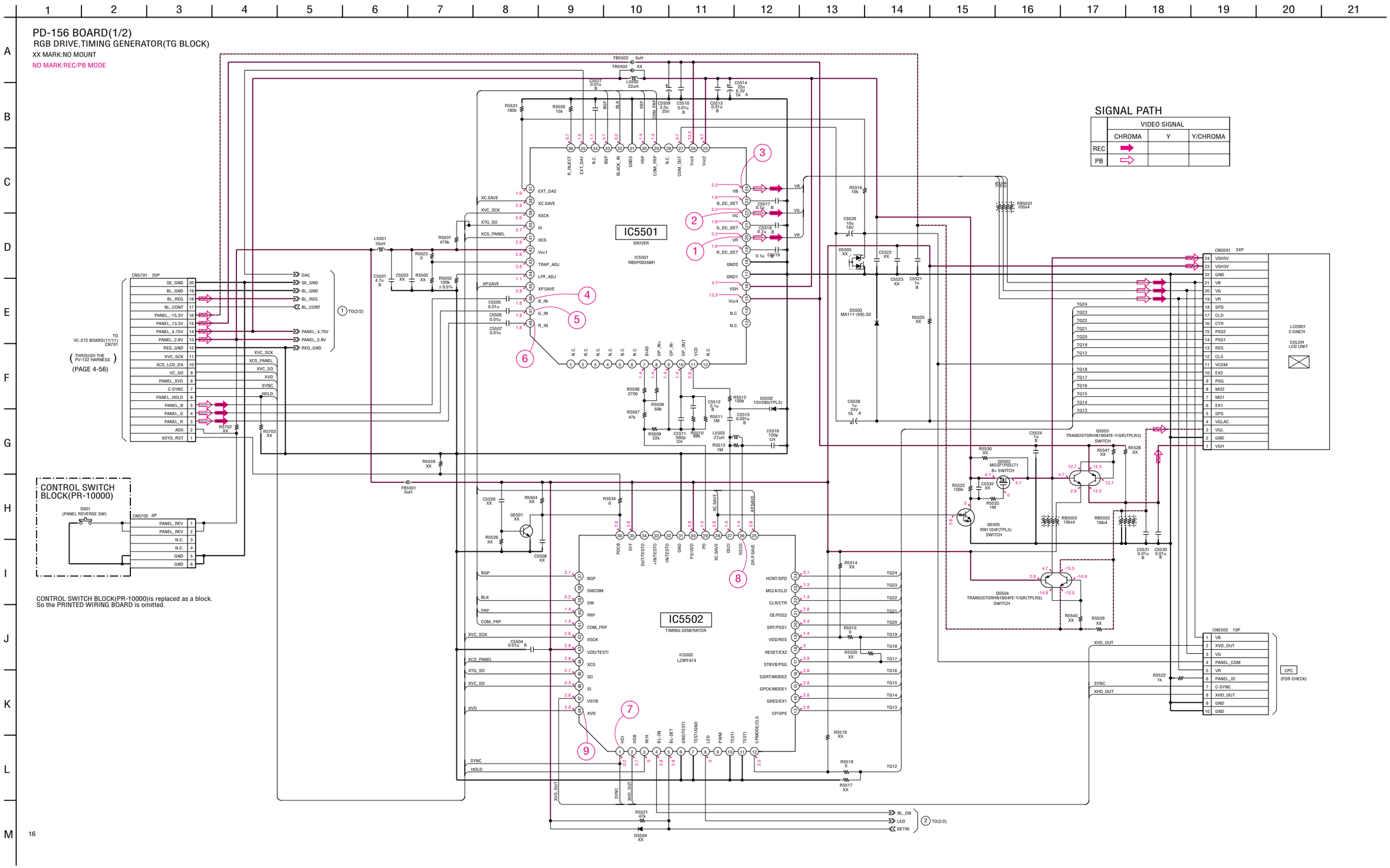
There are a few cases that the part printed on this diagram isn't mounted in this model.

• : Uses unleaded solder.



For Schematic Diagram

- Refer to page 4-19 for printed wiring board.
- Refer to page 4-59 for waveforms.



RGB DRIVE, TIMING GENERATOR
PD-156 (1/2)

For Schematic Diagram

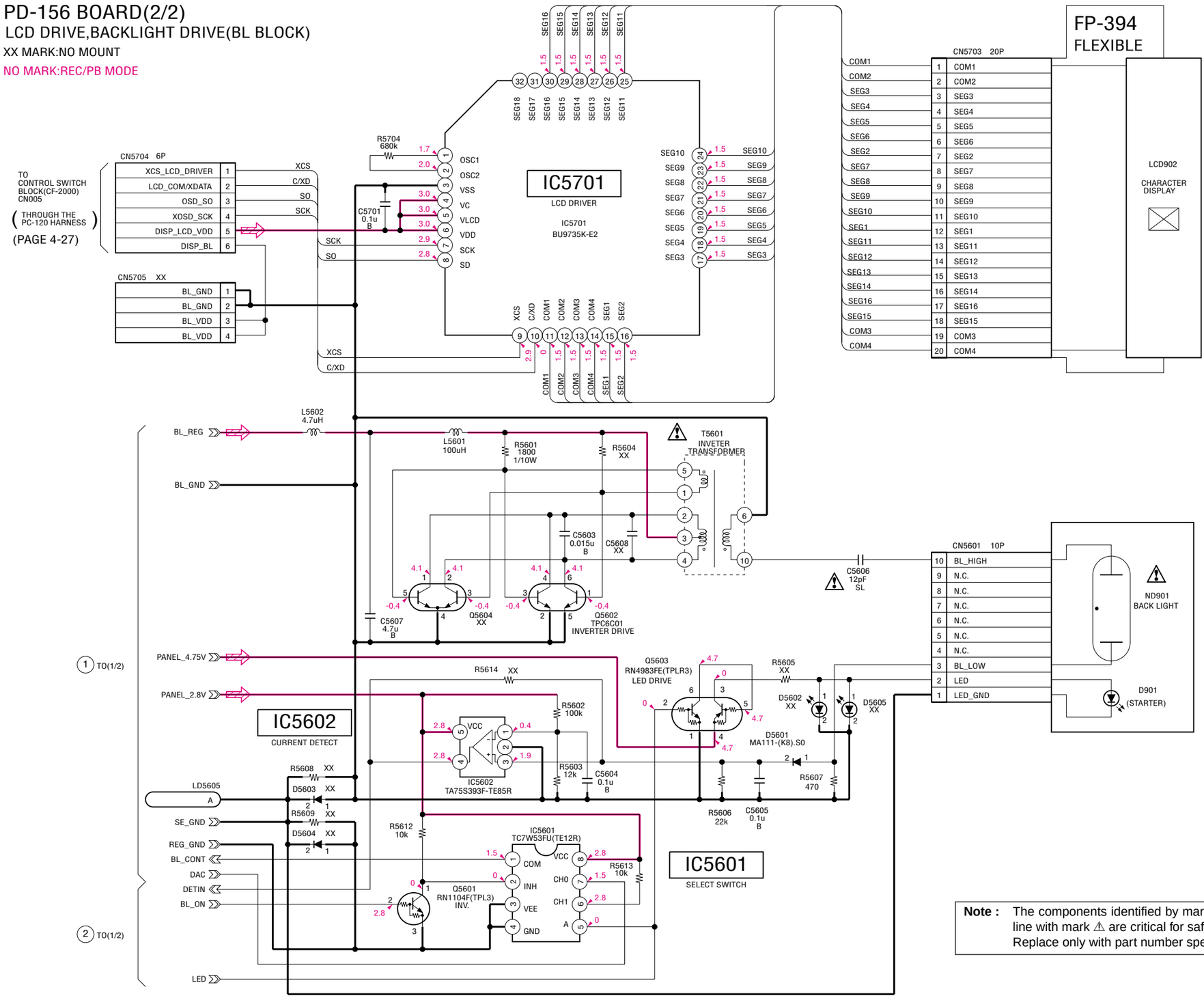
• Refer to page 4-19 for printed wiring board.

PD-156 BOARD(2/2)

LCD DRIVE,BACKLIGHT DRIVE(BL BLOCK)

XX MARK:NO MOUNT

NO MARK:REC/PB MODE

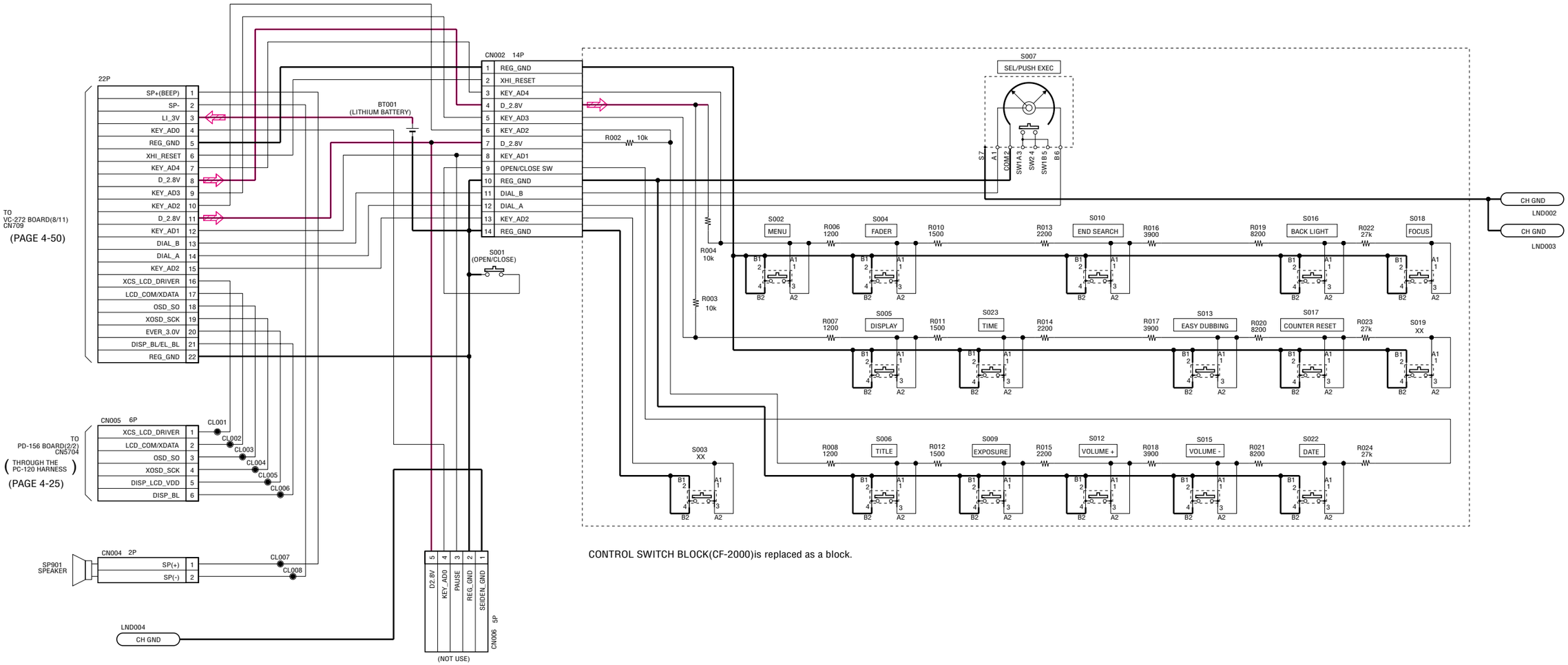


Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

CONTROL SWITCH BLOCK(CF-2000)

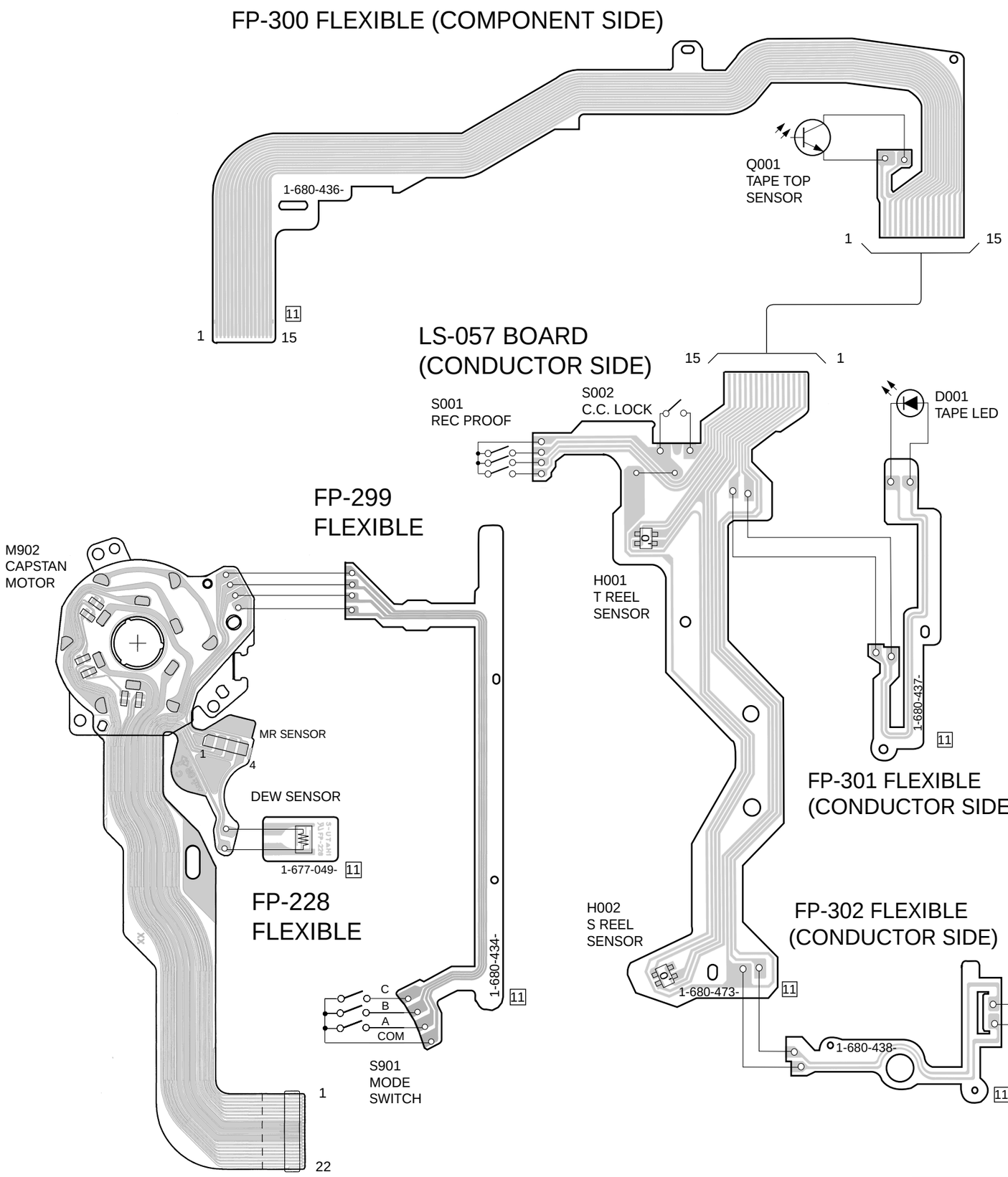
SWITCH

XX MARK:NO MOUNT



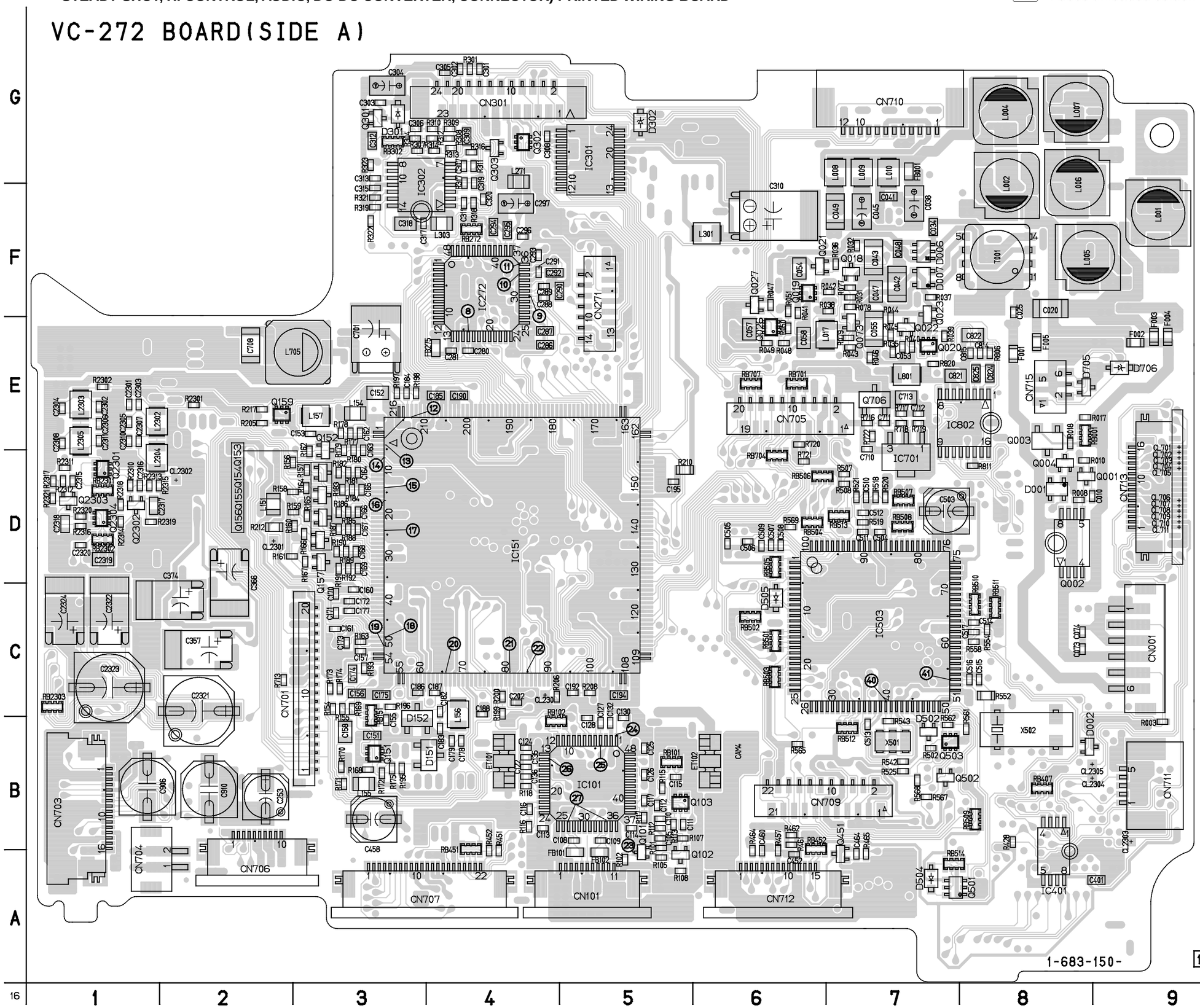
CONTROL SWITCH BLOCK(CF-2000)is replaced as a block.

LS-057 (S/T REEL SENSOR), FP-228 (DEW SENSOR), FP-299 (MODE SWITCH), FP-300 (TAPE TOP), FP-302 (TAPE END), FP-301 (TAPE LED) FLEXIBLE BOARDS



VC-272 (CAMERA PROCESSOR AMP, Y/C PROCESSOR, FOCUS/ZOOM MOTOR DRIVE, REC/PB AMP, LINE OUT AMP, SERVO, MODE CONTROL, STEADY SHOT, HI CONTROL, AUDIO, DC-DC CONVERTER, CONNECTOR) PRINTED WIRING BOARD

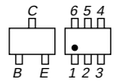
• : Uses unleaded solder.


VC-272 BOARD(SIDE A)
G
F
E
D
C
B
A
16
1
2
3
4
5
6
7
8
9
CN301
CN710
CN705
CN709
CN707
CN706
CN704
CN703
CN712
CN101
CN715
CN713
CN001
CN711
IC302
IC301
IC272
IC271
IC151
IC101
IC503
IC802
IC701
IC401
Q152
Q153
Q154
Q155
Q156
Q157
Q2303
Q2302
Q2301
Q159
Q018
Q021
Q027
Q022
Q020
Q706
Q003
Q004
Q001
Q002
Q503
Q502
Q103
Q102
Q101
Q501
Q451
D152
D151
D301
D302
D705
D706
D007
D006
D001
D505
D502
D504
D002
T001
X502
X501
L705
L301
L271
L303
L154
L157
L801
L004
L007
L002
L006
L005
L001
C310
C701
C708
C374
C366
C357
C2324
C2322
C2323
C2321
C458
C306
C310
C253
C374
C366
C357
C2324
C2322
C2323
C2321
C458
C306
C310
C253
RB2303
RB2302
RB451
RB452
RB707
RB701
RB704
RB506
RB507
RB508
RB504
RB505
RB501
RB502
RB503
RB510
RB511
RB512
RB514
RB407
RB101
RB102
RB272
RB5302
Q2304
Q2305
Q2306
Q2307
Q2308
Q2309
Q2310
Q2311
Q2312
Q2313
Q2314
Q2315
Q2316
Q2317
Q2318
Q2319
Q2320
Q2321
Q2322
Q2323
Q2324
Q2325
Q2326
Q2327
Q2328
Q2329
Q2330
Q2331
Q2332
Q2333
Q2334
Q2335
Q2336
Q2337
Q2338
Q2339
Q2340
Q2341
Q2342
Q2343

• LF : Uses unleaded solder.

For printed wiring board
- Refer to page 4-62 for parts location.
- This board consists of multiple layers. However, only the sides (layers) A and B are shown.
- Chip parts

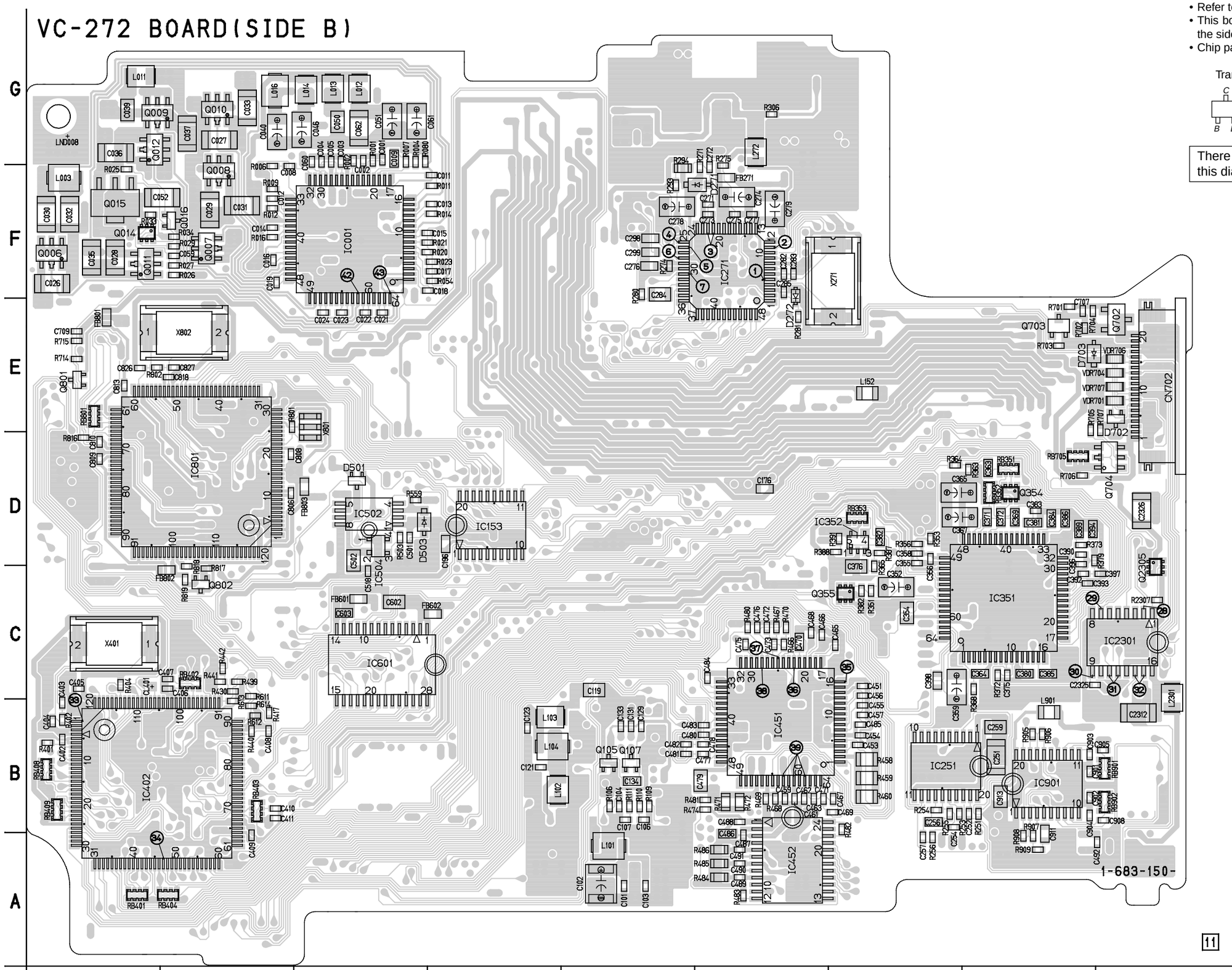
Transistor



Diode

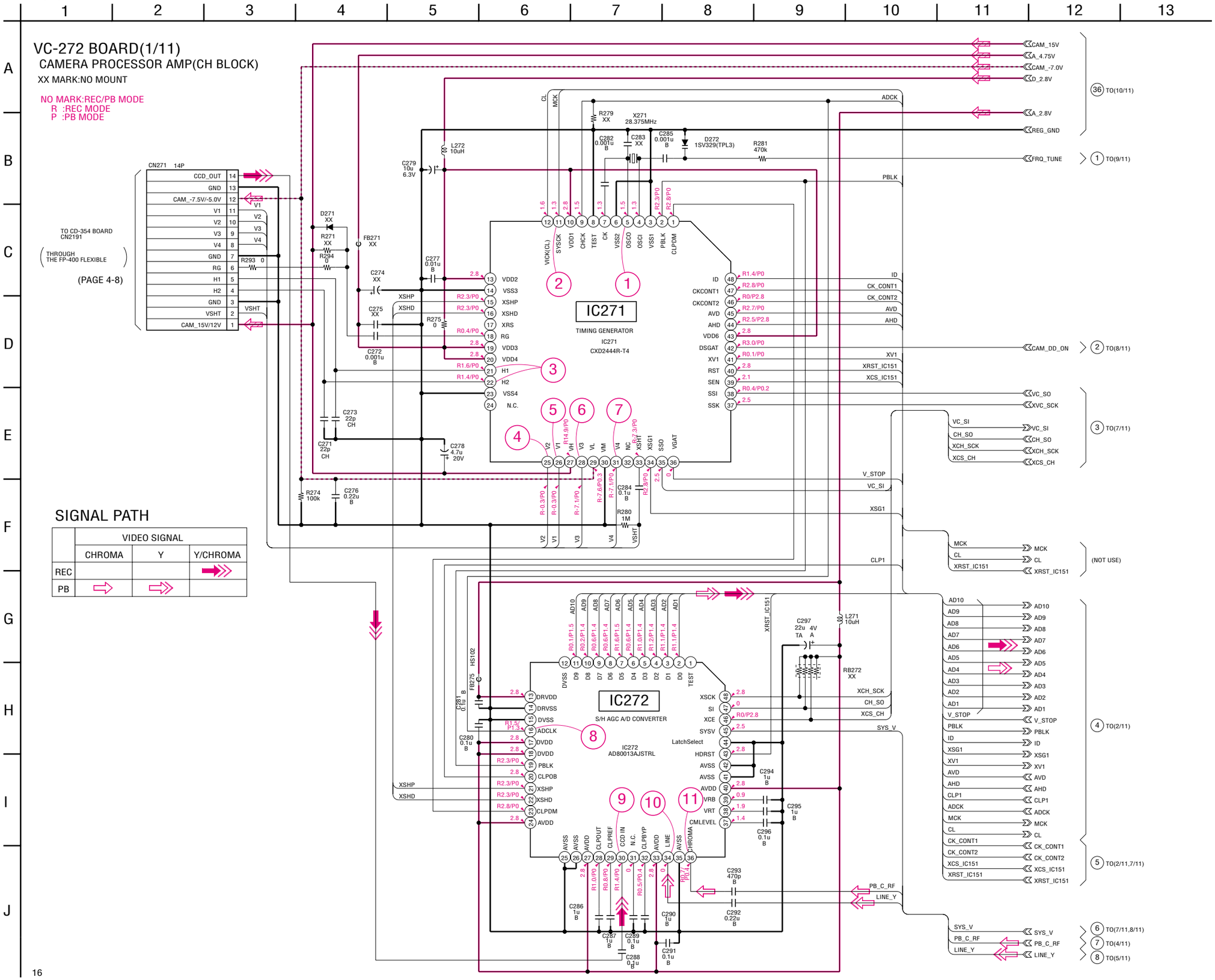
There are a few cases that the part printed on this diagram isn't mounted in this model.

VC-272 BOARD(SIDE B)



For Schematic Diagram

- Refer to page 4-31 for printed wiring board.
- Refer to page 4-59 for waveforms.

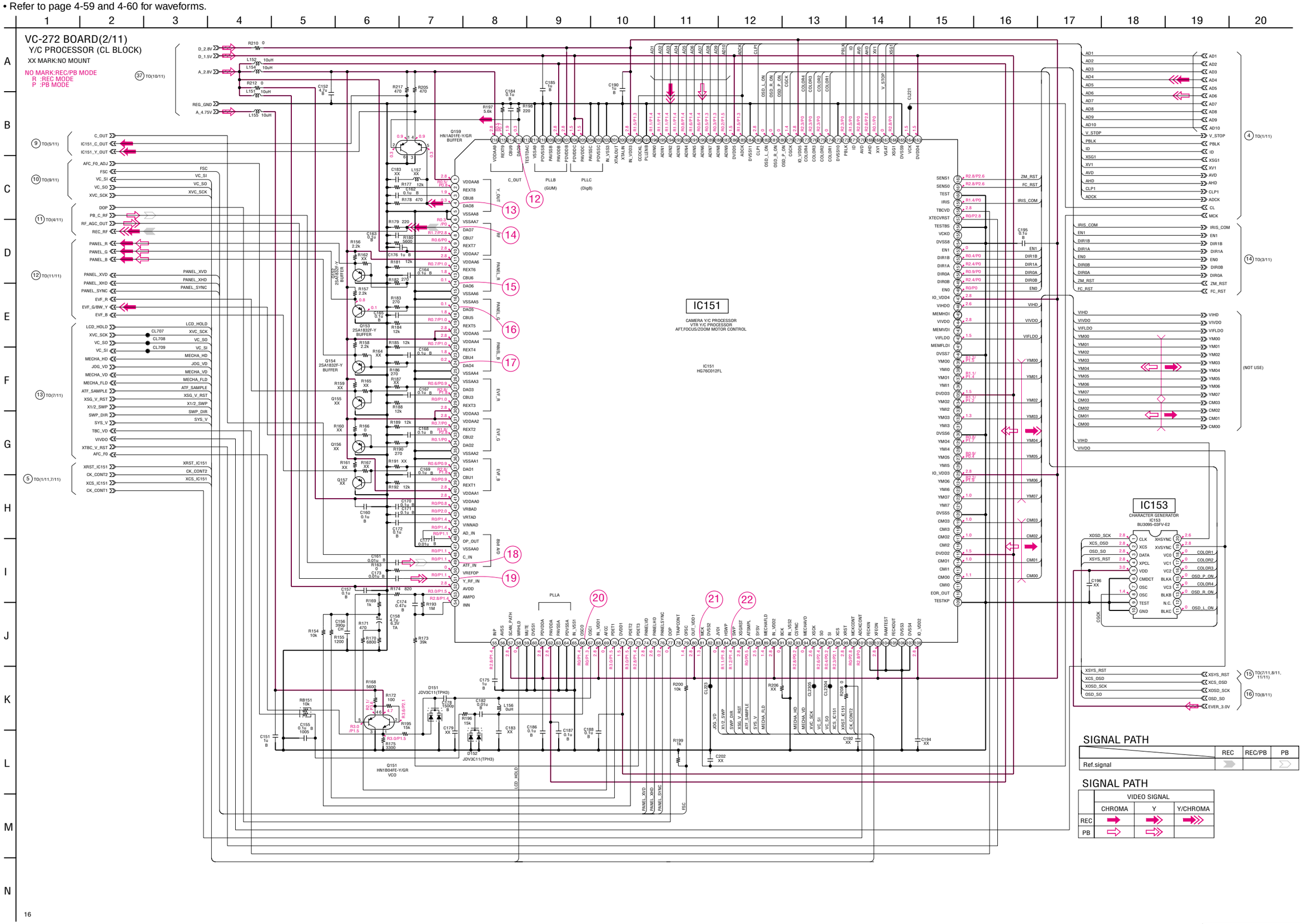


SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			➡
PB	⇨	⇨	

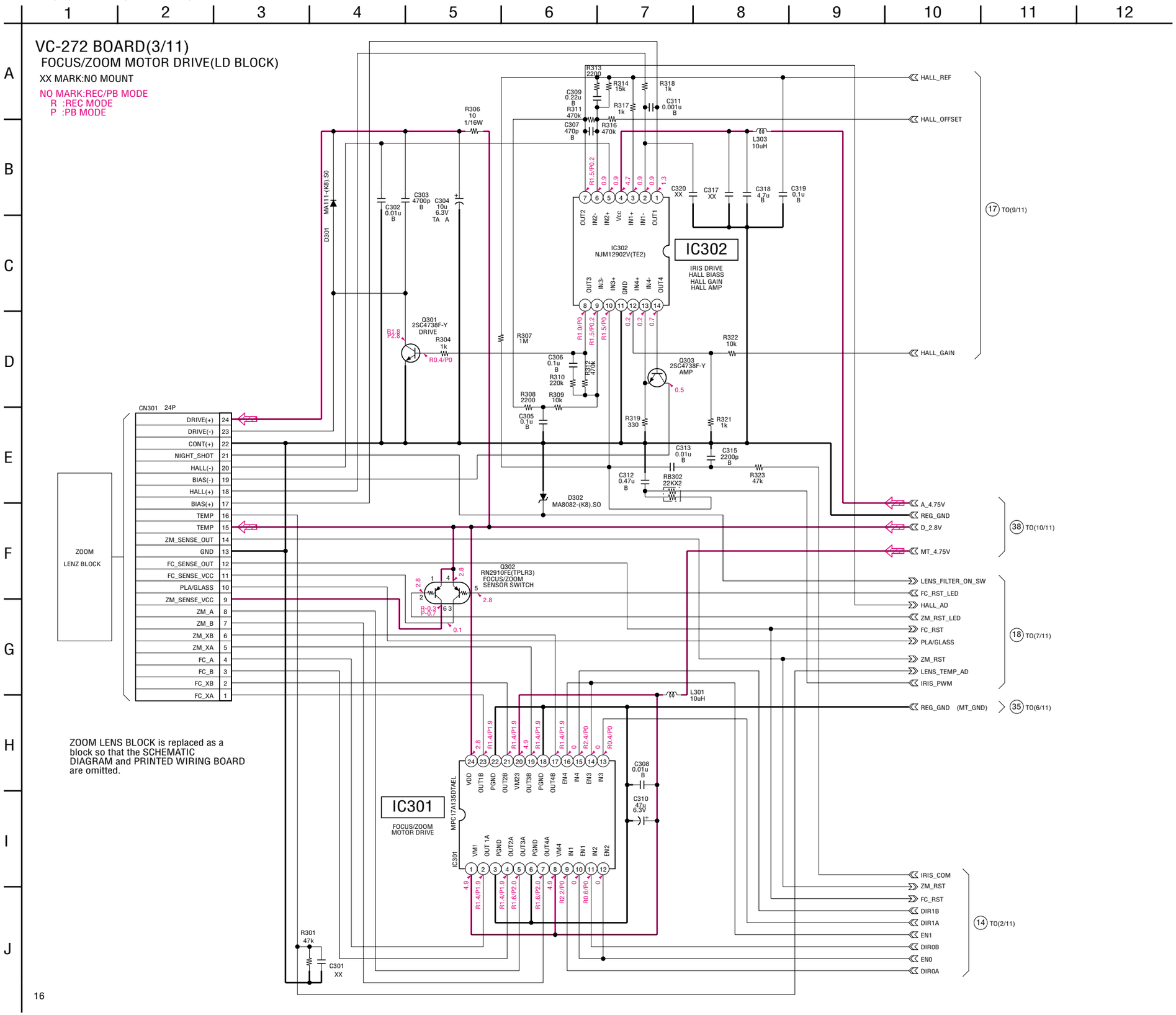
For Schematic Diagram

- Refer to page 4-31 for printed wiring board.
- Refer to page 4-59 and 4-60 for waveforms.



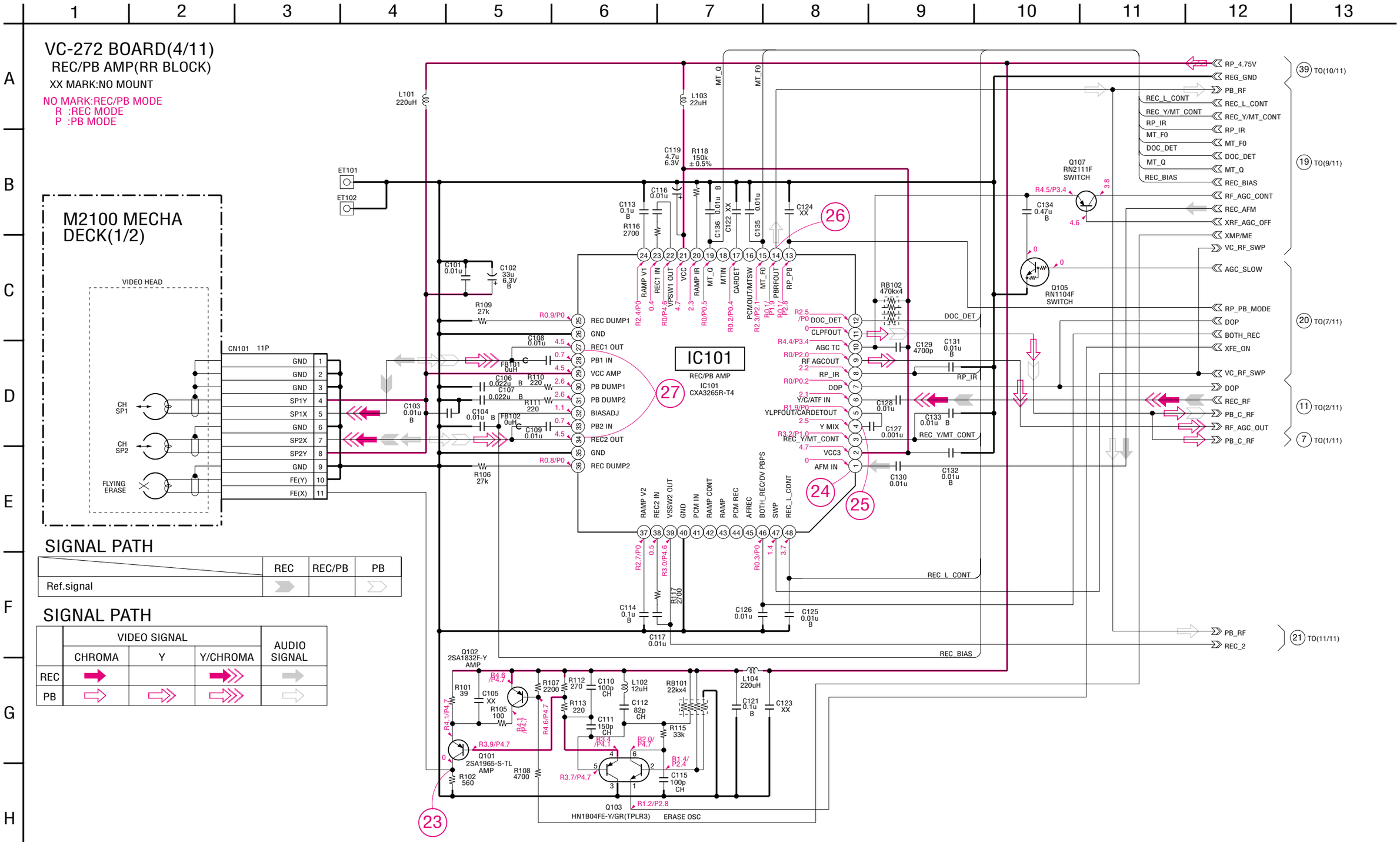
For Schematic Diagram

• Refer to page 4-31 for printed wiring board.



FOCUS/ZOOM MOTOR DRIVE
VC-272 (3/11)

For Schematic Diagram
- Refer to page 4-31 for printed wiring board.
- Refer to page 4-60 for waveforms.



SIGNAL PATH

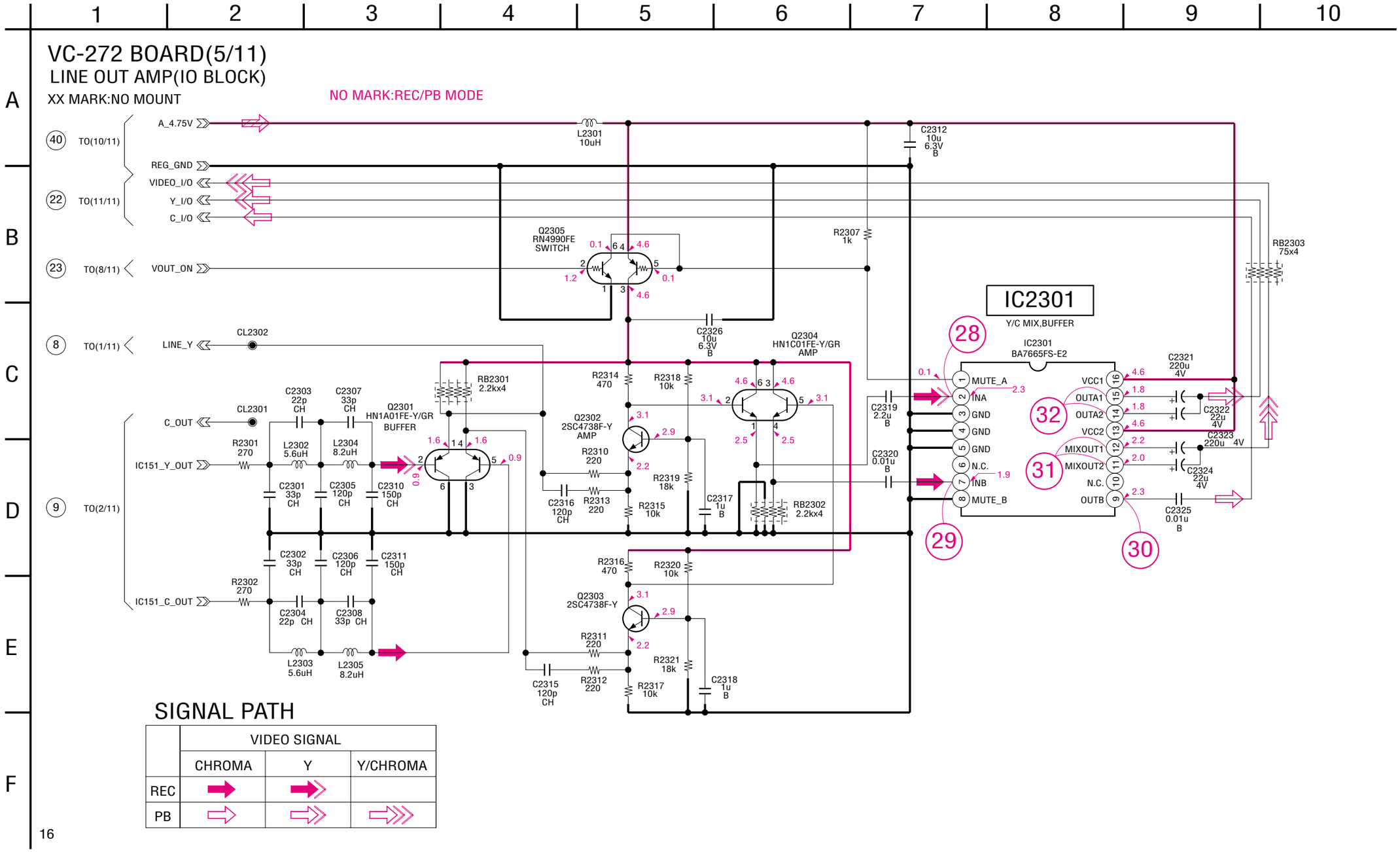
	REC	REC/PB	PB
Ref.signal	➡		⇨

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡		➡	➡
PB	⇨	⇨	⇨	⇨

For Schematic Diagram

- Refer to page 4-31 for printed wiring board.
- Refer to page 4-60 for waveforms.

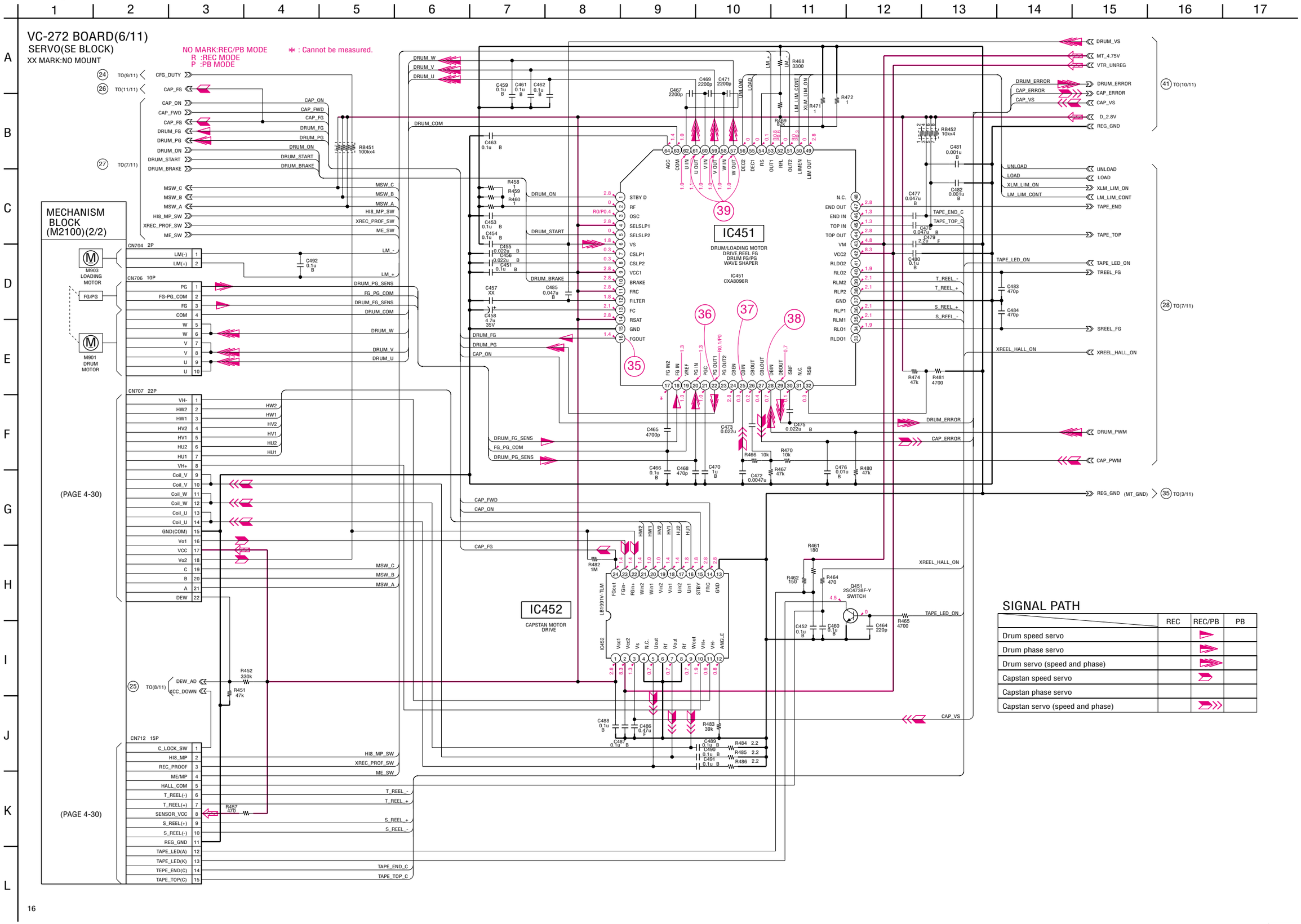


SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	⇉	
PB	⇨	⇉	⇉

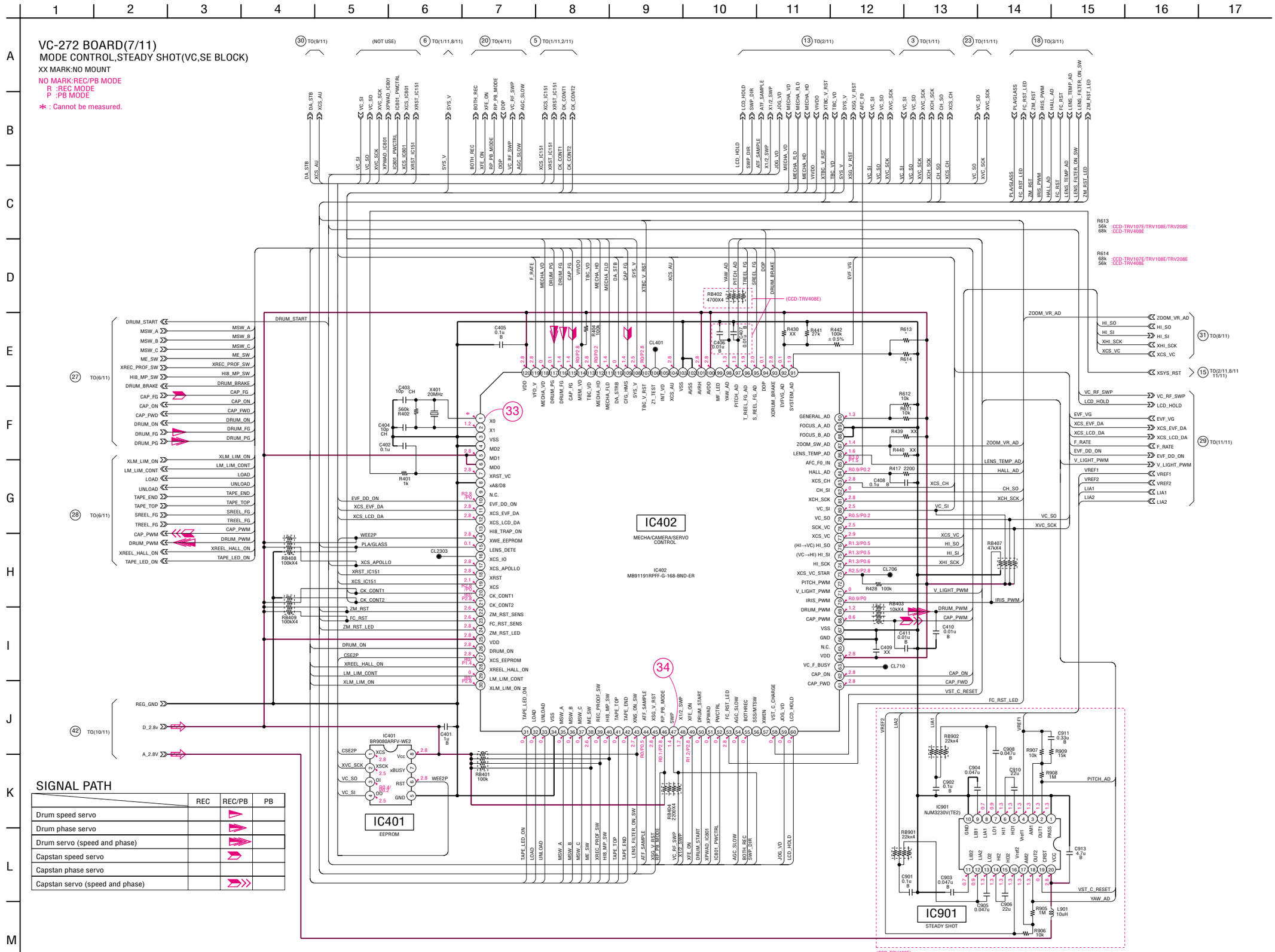
For Schematic Diagram

- Refer to page 4-31 for printed wiring board.
- Refer to page 4-60 for waveforms.



For Schematic Diagram

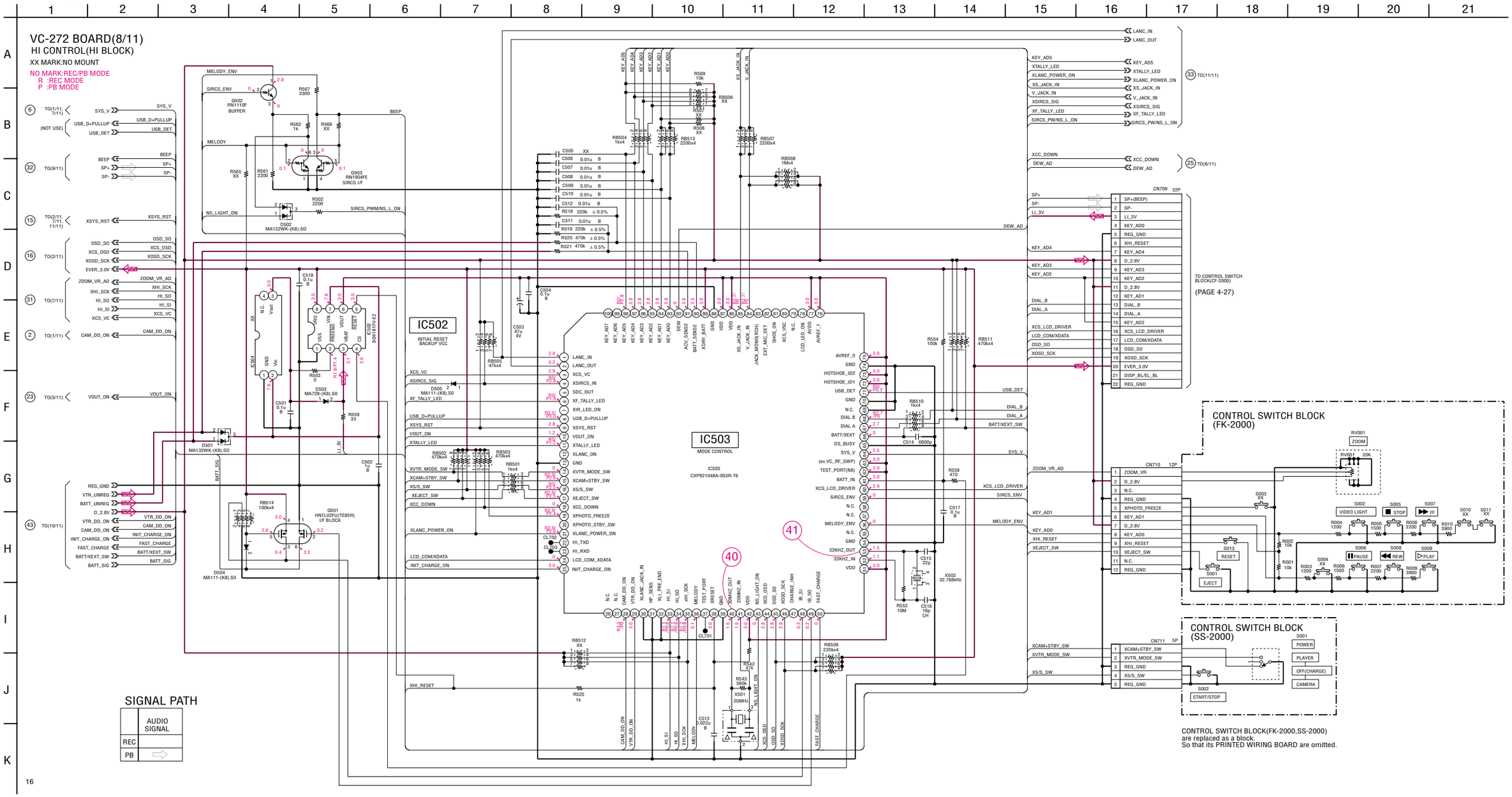
- Refer to page 4-31 for printed wiring board.
- Refer to page 4-60 for waveforms.



MODE CONTROL, STEADY SHOT
VC-272 (7/11)

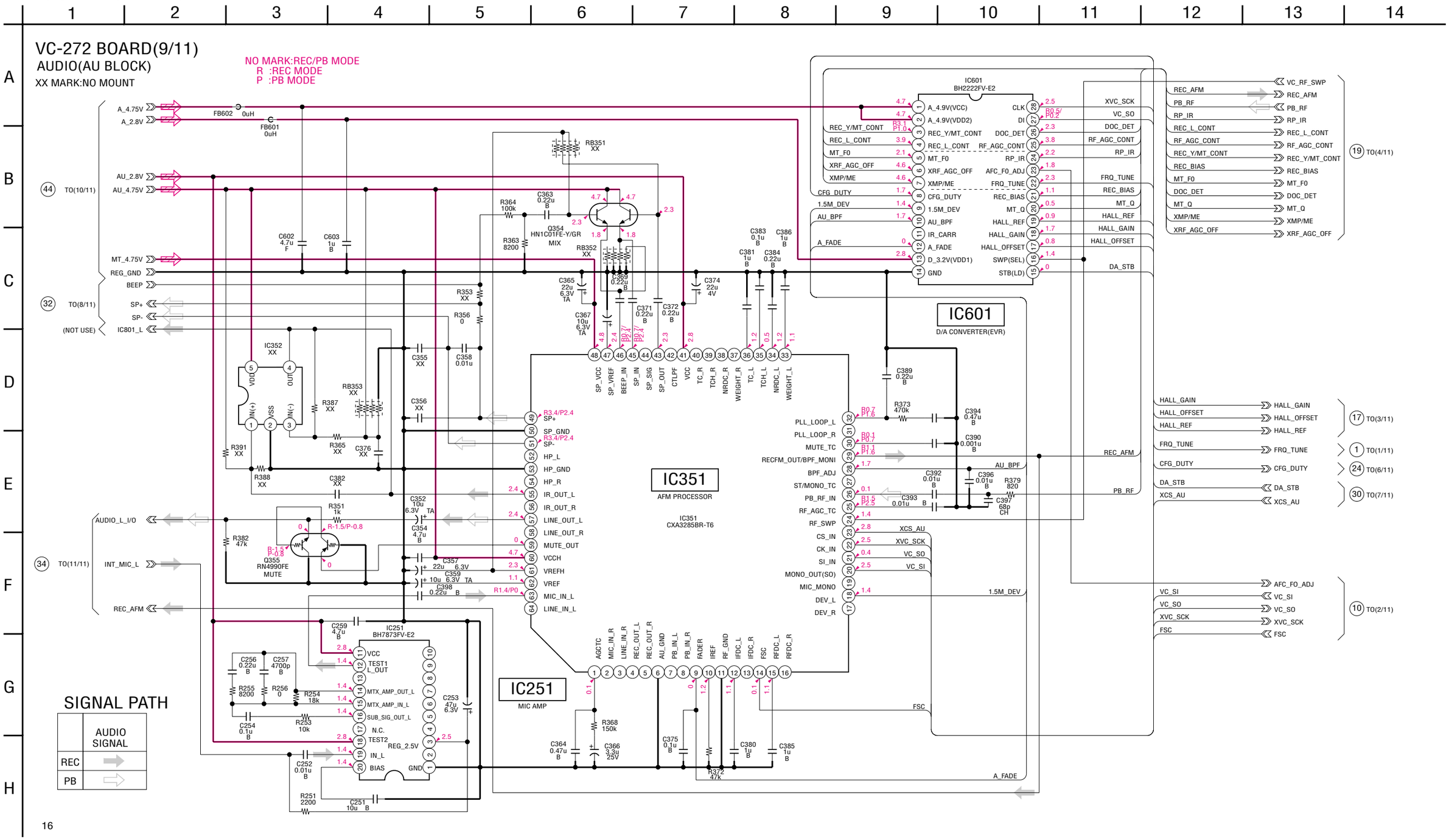
For Schematic Diagram

- Refer to page 4-31 for printed wiring board.
- Refer to page 4-60 for waveforms.



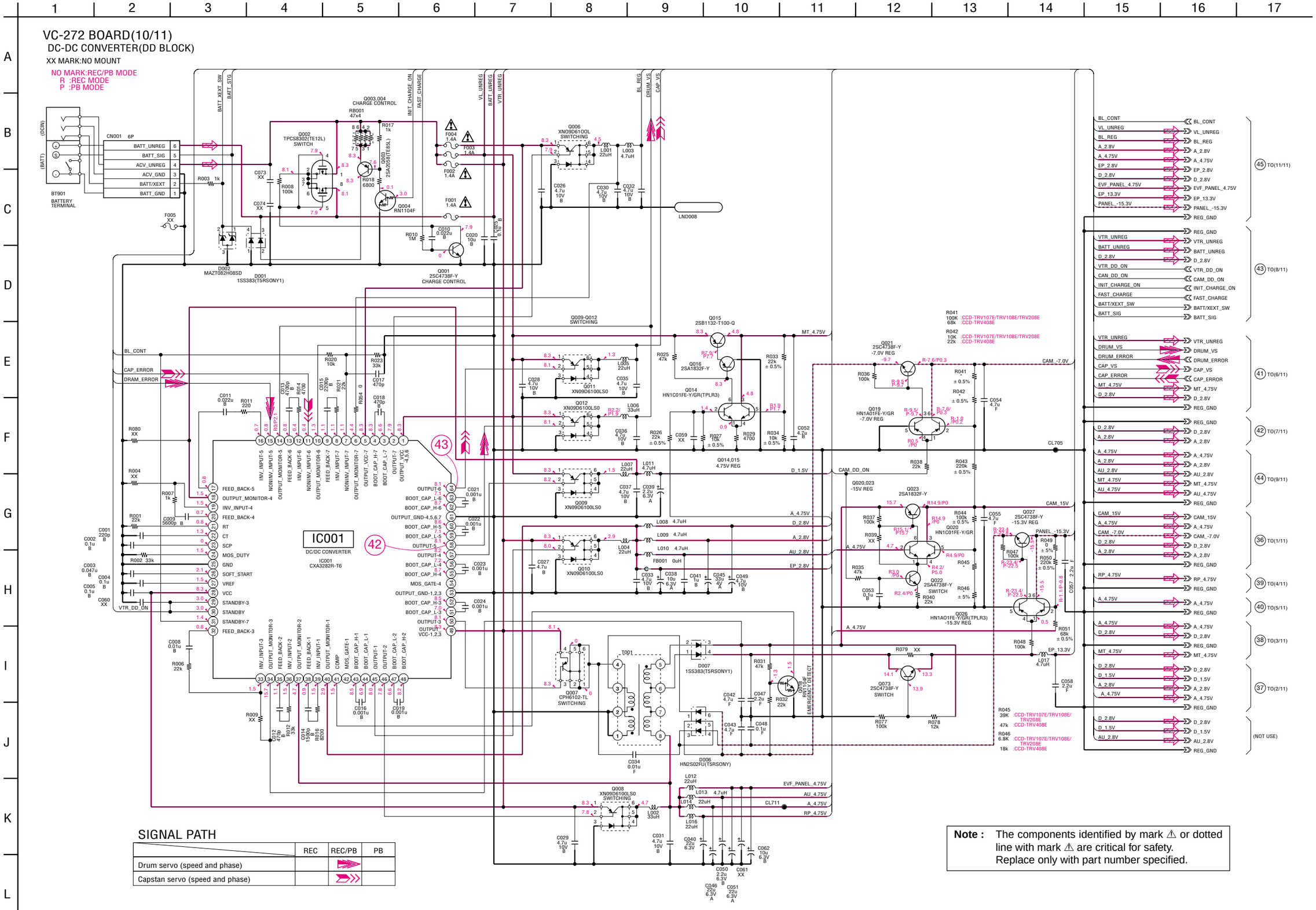
For Schematic Diagram

• Refer to page 4-31 for printed wiring board.



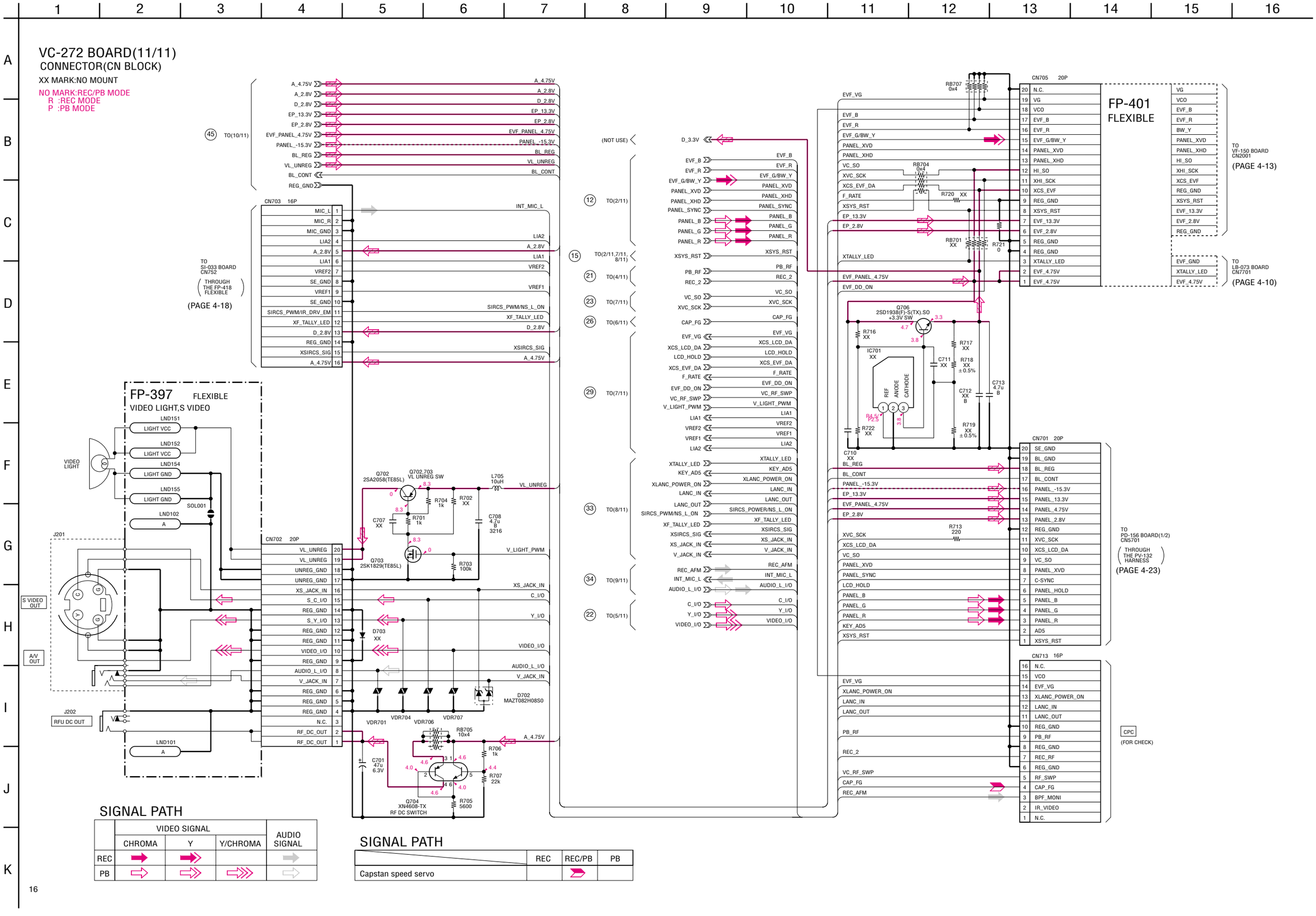
For Schematic Diagram

- Refer to page 4-31 for printed wiring board.
- Refer to page 4-60 for waveforms.



For Schematic Diagram

• Refer to page 4-31 for printed wiring board.



SIGNAL PATH

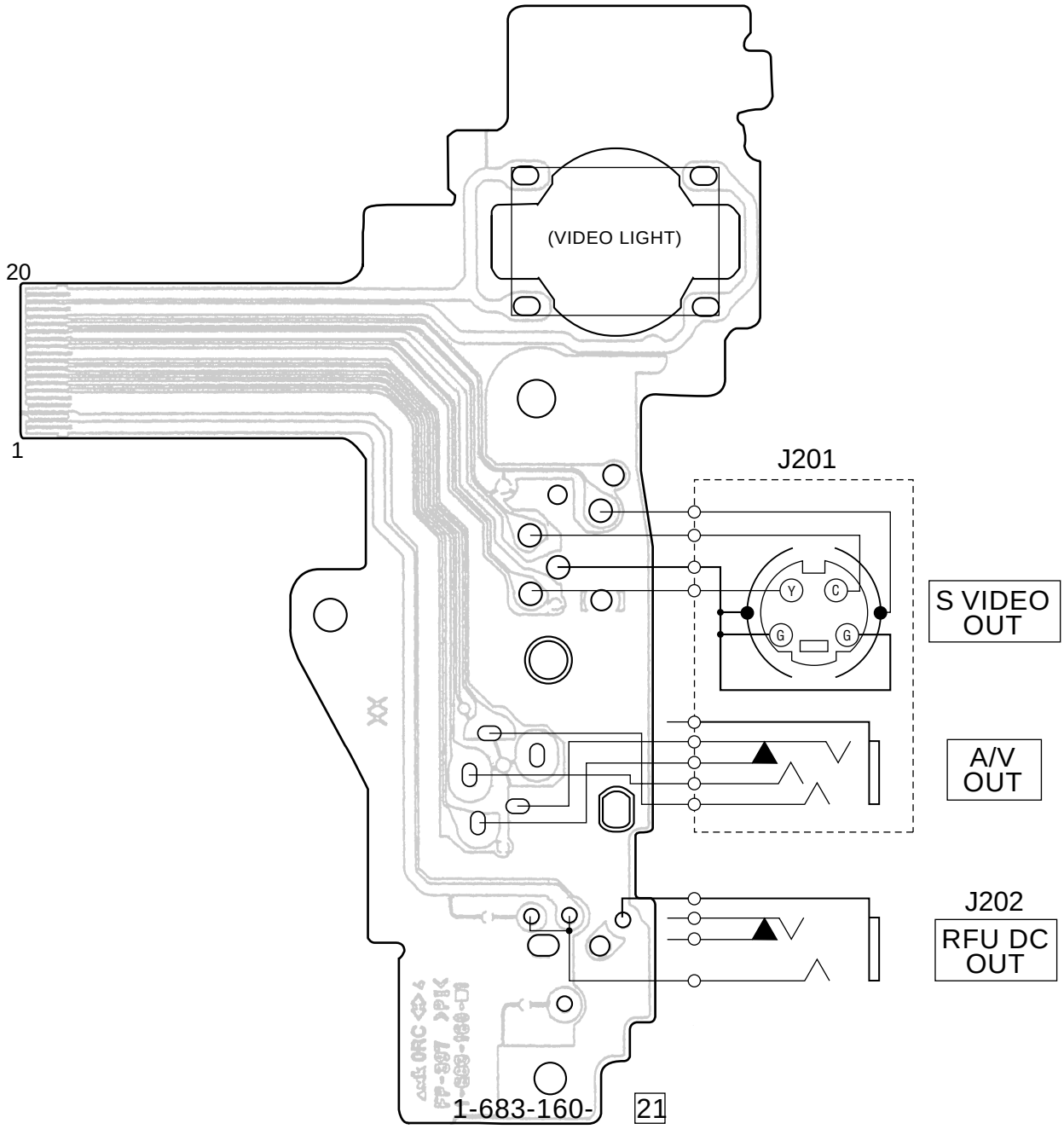
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡		➡
PB	⇨	⇨	⇨	⇨

SIGNAL PATH

	REC	REC/PB	PB
Capstan speed servo		➡	

FP-397 FLEXIBLE BOARD

FP-397 FLEXIBLE



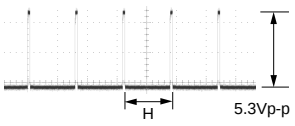
For printed wiring board

There are a few cases that the part printed on this diagram isn't mounted in this model.

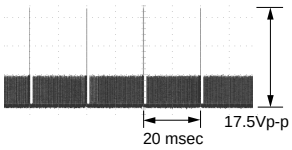
4-3. WAVEFORMS

CD-354 BOARD
CAMERA REC

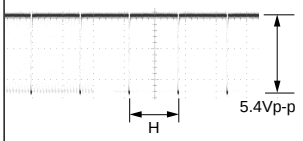
① IC2191 ①



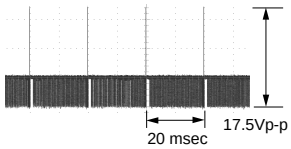
② IC2191 ②



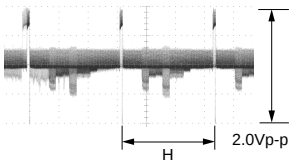
③ IC2191 ③



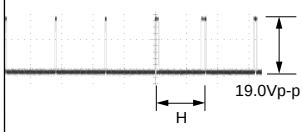
④ IC2191 ④



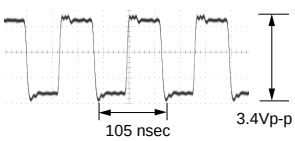
⑤ IC2191 ⑦



⑥ IC2191 ⑩

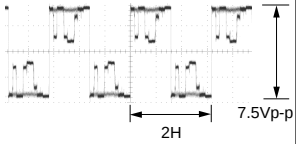


⑦ IC2191 ⑬⑭

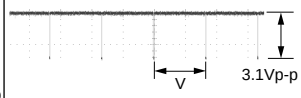


VF-150 BOARD

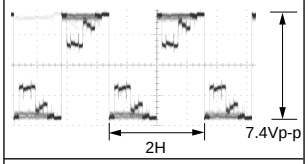
① IC2001 ⑳



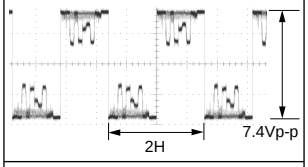
⑨ IC2002 ㊽



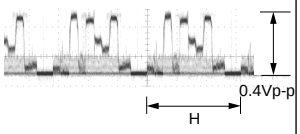
② IC2001 ㉒



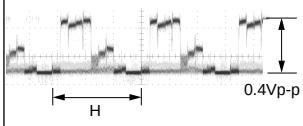
③ IC2001 ㉔



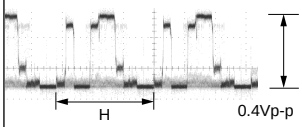
④ IC2001 ㊻



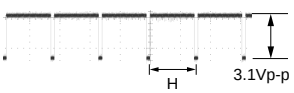
⑤ IC2001 ㊼



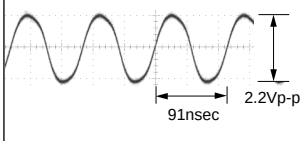
⑥ IC2001 ㊽



⑦ IC2002 ①

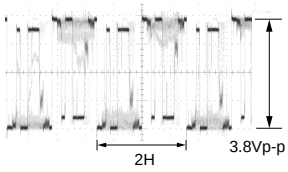


⑧ IC2002 ㉖

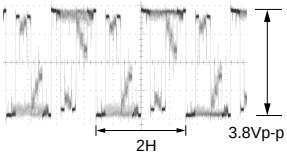


PD-156 BOARD

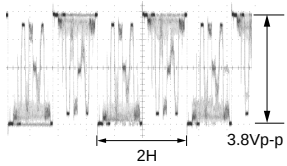
① IC5501 ⑳



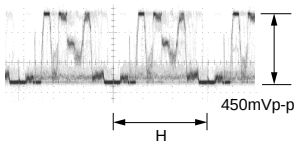
② IC5501 ㉒



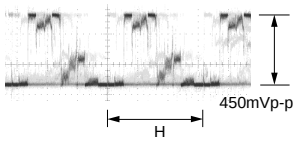
③ IC5501 ㉔



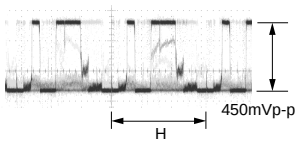
④ IC5501 ㊻



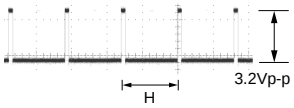
⑤ IC5501 ㊼



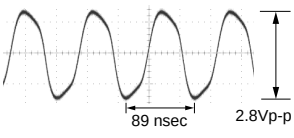
⑥ IC5501 ㊽



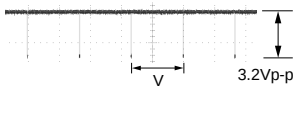
⑦ IC5502 ①



⑧ IC5502 ㉖

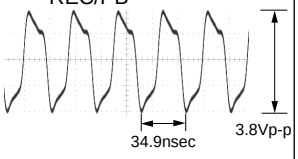


⑨ IC5502 ㊽

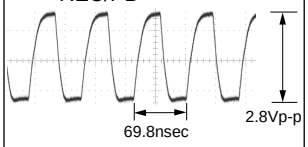


VC-272 BOARD

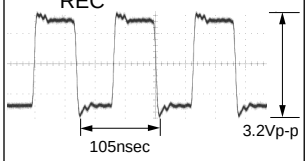
① IC271 ⑤
REC/PB



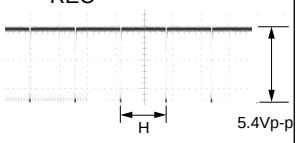
② IC271 ⑪
REC/PB



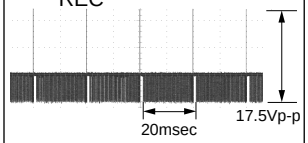
③ IC271 ㉑㉒
REC



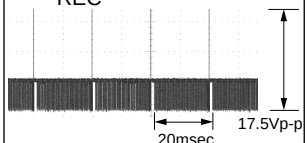
④ IC271 ㉕
REC



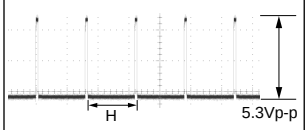
⑤ IC271 ㉖
REC



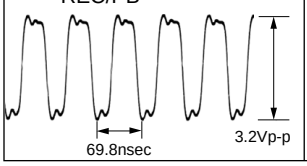
⑥ IC271 ㉘
REC



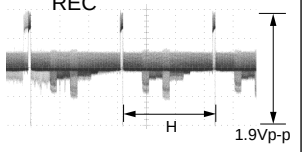
⑦ IC271 ㉛
REC



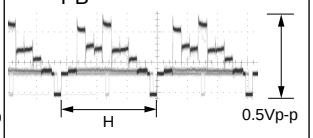
⑧ IC272 ⑯
REC/PB



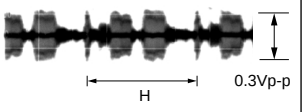
⑨ IC272 ㉚
REC



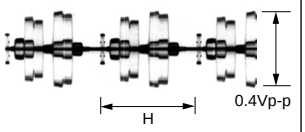
⑩ IC272 ㉞
PB



⑪ IC272 ㊱
PB

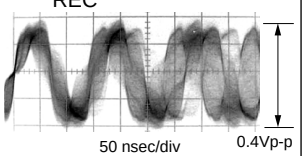


⑫ IC151 ㉓
REC/PB

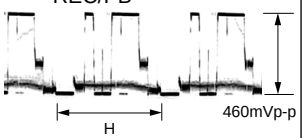


⑬ IC151 ④
REC/PB

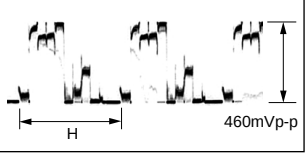
⑭ IC151 ⑦
REC



⑮ IC151 ⑭
REC/PB

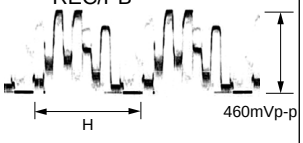


⑯ IC151 ⑰
REC/PB

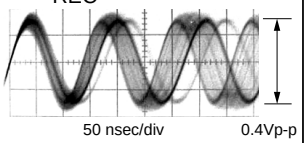


VC-272 BOARD

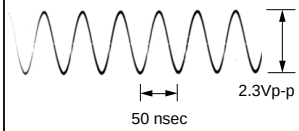
⑰ IC151 ㉔
REC/PB



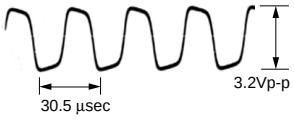
㉕ IC101 ④
REC



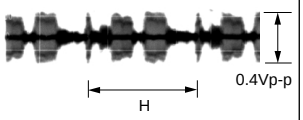
㉝ IC402 ①
REC/PB



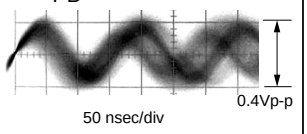
㊶ IC503 ⑬
REC/PB



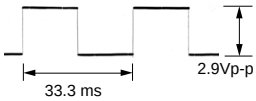
⑱ IC151 ㊾
PB



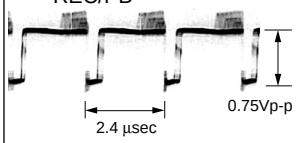
㉖ IC101 ⑭
PB



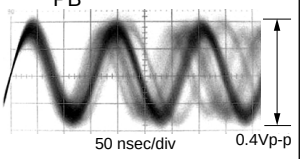
㉞ IC402 ㊼
REC/PB



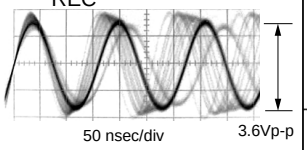
㊷ IC001 ⑬
REC/PB



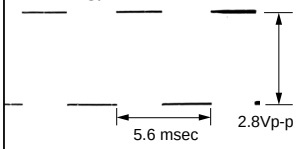
⑲ IC151 ㊶
PB



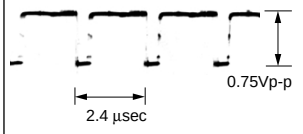
㉗ IC101 ㉗,㉞
REC



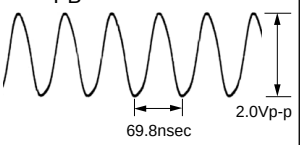
㉟ IC451 ⑯
REC/PB



㊸ IC001 ㊹
REC/PB

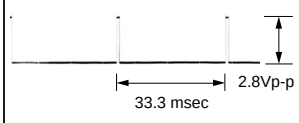


⑳ IC151 ㊻
PB

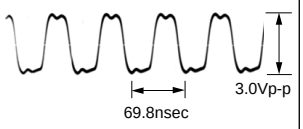


㉘ IC2301 ②
REC/PB

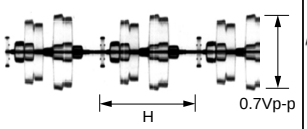
㊱ IC451 ㉒
REC/PB



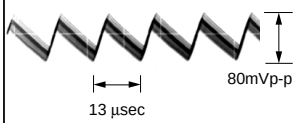
㉑ IC151 ㊶
REC/PB



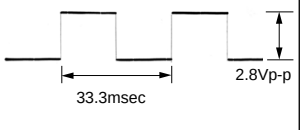
㉙ IC2301 ⑦
REC/PB



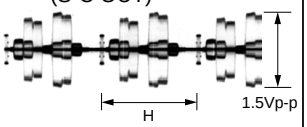
㊲ IC451 ㉕
REC/PB



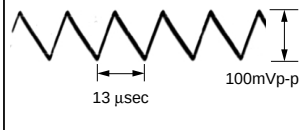
㉒ IC151 ㊺
REC/PB



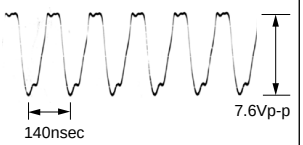
㉚ IC2301 ⑨
REC/PB
(S-C OUT)



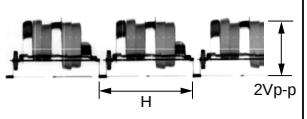
㊳ IC451 ㉘
REC/PB



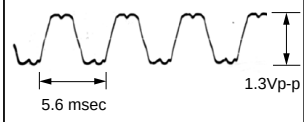
㉓ Q101 ⓒ
REC



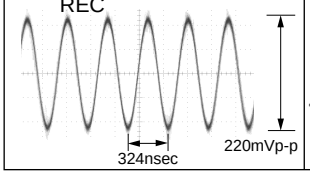
㉛ IC2301 ⑪⑫
REC/PB



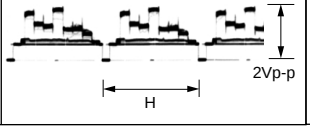
㊴ IC451 ㊼,㊾,㊶
REC/PB



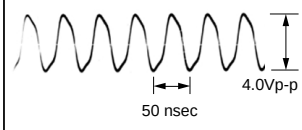
㉔ IC101 ①
REC



㉜ IC2301 ⑭⑮
REC/PB
(S-Y OUT)



㊵ IC503 ㊵
REC/PB



4-4. MOUNTED PARTS LOCATION

no mark : side A
* mark : side B

CD-354 BOARD

	C2191	B-2
*	C2194	B-5
*	C2195	A-4
	C2196	B-2
*	CN2191	A-5
	IC2191	A-2
*	L2191	B-4
*	Q2191	A-4
*	R2191	A-5
*	R2193	B-5

LB-073 BOARD

	CN7701	B-1
*	D7701	A-3
*	D7702	A-3
	IC7701	A-2
	Q7701	A-1
	Q7702	A-2
	R7701	A-1
	R7702	A-1
	R7703	A-1
	R7704	A-1
	R7705	A-1
	R7706	A-1
	TH7701	A-2

VF-150 BOARD

*	C2001	B-4
	C2002	B-1
	C2003	B-1
	C2004	B-1
	C2005	B-1
	C2006	B-1
*	C2007	A-4
*	C2008	A-4
	C2009	A-1
	C2010	A-1
*	C2011	A-3
*	C2012	A-4
	C2013	A-2
*	C2014	A-4
	C2015	A-1
	C2016	A-1
	C2017	A-1
	C2018	A-1
*	C2019	A-4
	C2020	B-2
*	CN2001	A-4
	CN2002	A-2
*	D2001	A-4
*	FB2001	B-3
*	FB2002	A-3
	IC2001	A-1
*	IC2002	A-3
*	L2001	B-3
*	L2002	A-3
	R2001	B-1
	R2002	B-1
*	R2003	A-4
	R2004	B-1
	R2005	A-1
	R2006	A-1
	R2007	A-1
	R2008	A-1
	R2009	A-1
	R2010	A-1
*	R2011	A-4
	R2012	A-1
	R2013	A-1
	R2014	A-1
*	R2015	A-4
	RB2001	A-2
*	RB2002	A-3
	RB2003	B-1

SI-033 BOARD

*	C750	A-5
*	C751	B-4
*	C752	B-6
*	C753	A-6
*	CN750	C-4
*	CN751	B-4
*	CN752	B-5
	D750	A-1
*	D751	A-6
	D752	B-2
*	FB753	D-6
*	FB754	C-6
*	FB755	C-5
*	FB756	C-6
	IC750	A-3
*	Q750	A-6
*	R750	A-6
*	R751	A-6
*	R752	A-6
*	R757	A-6
	SE750	C-2
	SE751	D-1

PD-156 BOARD

	C5501	B-3
	C5503	B-3
	C5504	B-5
	C5505	B-4
	C5506	B-4
	C5507	B-4
	C5508	B-4
	C5509	B-2
	C5510	B-3
	C5511	B-4
	C5512	B-4
	C5513	B-3
	C5514	B-2
	C5515	B-4
	C5516	B-4
	C5517	C-3
	C5518	C-3
	C5519	C-3
	C5520	B-2
	C5521	C-5
	C5522	B-6
	C5523	D-5
	C5524	C-6
	C5527	B-3
	C5528	D-4
	C5529	B-4
	C5530	D-6
	C5531	D-6
	C5532	C-5
	C5603	D-3
	C5604	B-6
	C5605	B-6
	C5606	D-2
	C5607	D-4
	C5608	D-4
	C5701	A-3
	CN5501	D-5
	CN5502	B-3
	CN5601	D-2
	CN5701	B-1
	CN5702	A-1
	CN5703	A-5
	CN5704	A-2
	CN5705	A-6
	D5502	B-4
	D5503	D-5
	D5504	B-5
	D5505	B-3
	D5601	C-6
*	D5602	D-11
	D5603	B-1
	D5604	B-2
*	D5605	D-11
	FB5501	B-4
	FB5502	C-2
	FB5503	C-1
	IC5501	B-3
	IC5502	B-5
	IC5601	B-5
	IC5602	B-6
	IC5701	A-3
	L5501	B-3
	L5502	C-2
	L5503	B-4
	L5601	D-4
	L5602	D-4
	Q5501	B-4
	Q5502	C-6
	Q5503	C-6
	Q5504	C-5
	Q5505	B-5
	Q5601	B-5
	Q5602	D-4
	Q5603	B-6
	Q5604	D-4
	R5501	B-3
	R5502	B-3
	R5503	B-4
	R5504	B-4
	R5505	B-3
	R5506	B-4
	R5507	B-4
	R5508	B-4
	R5509	B-4
	R5510	B-4
	R5511	B-4
	R5512	B-4
	R5513	B-4
	R5514	C-5
	R5515	C-5
	R5516	B-3
	R5517	B-5
	R5518	B-5
	R5519	B-5
	R5520	B-5
	R5521	B-5
	R5522	C-3
	R5523	B-3
	R5525	D-5
	R5526	B-4
	R5528	C-6
	R5529	C-5
	R5530	B-6
	R5531	B-3
	R5532	B-6
	R5533	C-5
	R5534	B-4
	R5539	B-4
	R5540	C-5
	R5541	C-6
	R5601	D-3
	R5602	B-6
	R5603	B-6
	R5604	D-4
	R5605	B-6
	R5606	B-6
	R5607	C-6
	R5608	B-1
	R5609	B-2
	R5612	B-6
	R5613	A-6
	R5614	B-6
	R5702	B-1
	R5703	B-1
	R5704	A-3
	RB5501	C-3
	RB5502	C-5
	RB5503	C-5
	T5601	D-3

no mark : side A
* mark : side B

VC-272 BOARD

* C001	G-12	C128	B-5	C301	G-4	* C475	C-15	C2319	D-1	* IC601	C-12	* Q354	D-17	R158	D-3				
* C002	G-12	* C129	B-14	C302	G-4	* C476	C-15	C2320	D-1	IC701	D-7	* Q355	C-16	R159	D-3				
* C003	G-12	C130	B-5	C303	G-3	* C477	B-15	C2321	C-2	* IC801	D-11	Q451	A-7	R160	D-3				
* C004	G-12	* C131	B-14	C304	G-3	* C478	B-15	C2322	C-1	IC802	E-8	Q501	A-7	R161	D-2				
* C005	G-12	C132	B-5	C305	G-4	* C479	B-15	C2323	C-1	* IC901	B-17	Q502	B-7	R162	D-3				
* C008	F-11	* C133	B-14	C306	G-3	* C480	B-15	C2324	C-1	* IC2301	C-18	Q503	B-7	R163	C-3				
* C009	G-12	* C134	B-14	C307	G-4	* C481	B-14	* C2325	C-17			* Q702	E-18	R164	D-3				
C010	D-9	C135	B-4	C308	G-4	* C482	B-14	* C2326	D-18	L001	F-9	* Q703	E-17	R165	D-3				
* C011	F-13	C136	B-4	C309	G-4	* C483	B-15			L002	F-8	* Q704	D-18	R166	D-3				
* C012	F-11	C151	B-3	C310	F-6	* C484	C-15	CN001	C-9	* L003	F-10	Q706	E-7	R167	D-3				
* C013	F-13	C152	E-3	C311	F-4	* C485	B-16	CN101	A-5	L004	G-8	* Q801	E-10	R168	B-3				
* C014	F-11	C153	E-3	C312	G-3	* C486	A-15	CN271	F-5	L005	F-8	* Q802	C-11	R169	C-3				
* C015	F-13	C155	B-3	C313	G-3	* C487	A-15	CN301	G-4	L006	F-8	Q2301	D-1	R170	B-3				
* C016	F-11	C156	C-3	C315	F-3	* C488	B-15	CN701	C-3	L007	G-8	Q2302	D-1	R171	B-3				
* C017	F-13	C157	C-3	C317	F-3	* C489	A-15	* CN702	E-18	L008	G-7	Q2303	D-1	R172	B-3				
* C018	F-13	C158	B-3	C318	F-3	* C490	A-15	CN703	B-1	L009	G-7	Q2304	D-1	R173	C-3				
* C019	F-11	C160	C-3	C319	G-4	* C491	A-15	CN704	A-1	L010	G-7	* Q2305	C-18	R174	C-3				
C020	F-8	C161	C-3	C320	F-4	* C492	A-18	CN705	E-6	* L011	G-10			R175	B-3				
* C021	E-12	C162	E-3	* C352	C-16	* C501	D-12	CN706	A-2	* L012	G-12	* R001	G-12	R177	E-3				
* C022	E-12	C163	D-3	* C354	C-16	* C502	D-12	CN707	A-3	* L013	G-12	* R002	G-12	R178	E-3				
* C023	E-12	C164	D-3	* C355	D-16	C503	D-7	CN709	B-6	* L014	G-12	R003	B-9	R179	D-3				
* C024	E-12	C165	D-3	* C356	D-16	C504	D-7	CN710	G-7	* L016	G-11	* R004	G-12	R180	D-3				
C025	F-8	C166	D-3	C357	C-2	C505	D-6	CN711	B-9	L017	E-6	* R006	F-11	R181	D-3				
* C026	F-10	C167	D-3	* C358	D-16	C506	D-6	CN712	A-6	* L101	A-14	* R007	G-12	R182	D-3				
* C027	G-11	C168	D-3	* C359	C-16	C507	D-6	CN713	D-9	* L102	B-13	R008	D-8	R183	D-3				
* C028	F-10	C169	D-3	* C363	D-17	C508	D-6	CN715	E-8	* L103	B-13	* R009	F-11	R184	D-3				
* C029	F-11	C170	C-3	* C364	C-17	C509	D-6			* L104	B-13	R010	D-8	R185	D-3				
* C030	F-10	C171	C-3	* C365	D-16	C510	D-7	D001	D-8	L151	D-2	* R011	F-13	R186	D-3				
* C031	F-11	C172	C-3	C366	D-2	C511	D-7	D002	B-8	* L152	E-16	* R012	F-11	R187	D-3				
* C032	F-10	C173	C-3	* C367	D-16	C512	D-7	D006	F-7	L154	E-3	* R014	F-13	R188	D-3				
* C033	G-11	C174	C-3	* C369	D-17	C513	B-7	D007	F-7	L155	B-3	* R016	F-11	R189	D-3				
C034	F-7	C175	C-3	* C371	D-17	C514	C-8	D151	B-4	L156	C-4	R017	E-8	R190	D-3				
* C035	F-10	* C176	D-15	* C372	D-17	C515	C-8	D152	B-3	L157	E-3	R018	E-8	R191	D-3				
* C036	G-10	C177	C-3	C374	C-2	C516	C-8	* D271	F-15	L271	G-4	* R020	F-13	R192	D-3				
* C037	G-11	C178	B-4	* C375	C-17	C517	C-8	* D272	F-15	* L272	G-15	* R021	F-13	R193	C-3				
C038	F-7	C179	B-4	* C376	D-16	* C518	C-12	D301	G-3	L301	F-6	* R023	F-13	R195	B-3				
* C039	G-10	C182	C-4	* C380	C-17	* C602	C-12	D302	G-5	L303	F-4	* R025	F-10	R196	C-3				
* C040	G-11	C183	B-4	* C381	D-17	* C603	C-12	* D501	D-12	L705	E-3	* R026	F-11	R197	E-3				
C041	F-7	C184	E-3	* C382	D-16	C701	E-3	D502	B-7	L801	E-7	* R027	F-11	R198	E-3				
C042	F-7	C185	E-4	* C383	D-17	* C707	E-17	* D503	D-12	* L901	B-17	* R029	F-11	R199	C-4				
C043	F-7	C186	C-3	* C384	D-17	C708	E-2	D504	A-7	* L2301	B-18	R031	F-7	R200	C-4				
C045	F-7	C187	C-4	* C385	C-17	* C709	E-10	D505	C-6	L2302	E-1	R032	F-7	R205	E-2				
* C046	G-12	C188	C-4	* C386	D-17	C710	D-7	* D702	E-18	L2303	E-1	* R033	F-10	R206	C-4				
C047	F-7	C190	E-4	* C389	D-17	C711	E-7	* D703	E-18	L2304	D-1	* R034	F-11	R208	C-5				
C048	F-7	C192	C-5	* C390	D-17	C712	E-7	D705	E-8	L2305	E-1	R035	E-7	R210	D-5				
C049	F-7	C194	C-5	* C392	C-17	C713	E-7	D706	E-9			R036	F-7	R212	D-2				
* C050	G-12	C195	D-5	* C393	C-17	* C806	D-11			Q001	D-8	R037	F-7	R217	E-2				
* C051	G-12	* C196	D-13	* C394	D-17	* C808	D-11	ET101	B-4	Q002	D-8	R038	F-7	* R251	B-17				
* C052	F-10	C202	C-4	* C396	D-17	* C809	D-10	ET102	B-6	Q003	E-8	R039	E-7	* R253	B-16				
C053	E-7	* C251	B-17	* C397	C-18	* C810	D-10			Q004	D-8	R040	E-7	* R254	B-16				
C054	F-6	* C252	B-17	* C398	C-16	* C813	E-10	F001	E-8	* Q006	F-10	R041	F-6	* R255	B-16				
C055	E-7	C253	B-2	C401	A-9	C814	E-8	F002	E-9	* Q007	F-11	R042	F-7	* R256	A-16				
C057	E-6	* C254	B-16	* C402	B-10	C815	E-8	F003	E-9	* Q008	F-11	R043	E-7	* R271	F-15				
C058	E-6	* C256	B-16	* C403	B-10	* C818	E-11	F004	E-9	* Q009	G-10	R044	E-7	* R274	F-14				
* C059	F-11	* C257	A-16	* C404	B-10	C821	E-7	F005	E-8	* Q010	G-11	R045	E-7	* R275	F-15				
* C060	G-12	* C259	B-17	* C405	C-10	C822	E-8			* Q011	F-10	R046	E-7	* R280	F-14				
* C061	G-12	* C271	F-15	* C406	C-11	C824	E-8	FB001	G-7	* Q012	G-10	R047	F-6	* R281	E-15				
* C062	G-12	* C272	F-15	* C407	C-11	C825	E-8	FB101	A-5	* Q014	F-10	R048	E-6	* R293	F-14				
C073	C-8	* C273	F-15	* C408	B-11	* C826	E-10	FB102	A-5	* Q015	F-10	R049	E-6	* R294	F-14				
C074	C-8	* C274	F-15	* C409	A-11	* C827	E-11	* FB271	F-15	* Q016	F-11	R050	E-6	R301	G-4				
* C101	A-14	* C275	F-15	* C410	B-11	* C901	B-17	FB275	E-4	Q018	F-7	R051	F-6	R304	G-3				
* C102	A-14	* C276	F-14	* C411	B-11	* C902	B-17	* FB601	C-12	Q019	F-6	* R054	F-13	* R306	G-15				
* C103	A-14	* C277	F-15	* C451	C-16	* C903	B-17	* FB602	C-13	Q020	E-7	R077	F-7	R307	G-3				
* C104	B-14	* C278	F-14	C452	A-6	* C904	B-17	* FB801	E-10	Q021	F-6	R078	F-7	R308	G-4				
C105	B-5	* C279	F-15	* C453	B-16	* C905	B-18	* FB802	C-11	Q022	E-7	R079	E-7	R309	G-4				
* C106	B-14	C280	E-4	* C454	B-16	C906	B-1	* FB803	D-12	Q023	F-7	* R080	G-12	R310	G-4				
* C107	B-14	C281	E-4	* C455	B-16	* C908	B-18			Q026	E-6	R101	B-5	R311	G-4				
C108	B-5	* C282	F-15	* C456	C-16	C910	B-2	* IC001	F-12	Q027	F-6	R102	A-5	R312	G-4				
C109	B-5	* C283	F-15	* C457	B-16	* C911	A-17	IC101	B-5	Q073	E-7	R105	A-5	R313	G-4				
C110	B-5	* C284	F-14	C458	B-3	* C913	B-17	IC151	D-4	Q101	B-5	* R106	B-14	R314	G-4				
C111	B-5	* C285	F-15	* C459	B-15	C2301	E-1	* IC153	D-13	Q102	A-5	R107	B-5	R316	G-4				
C112	B-5	C286	E-4	C460	A-6	C2302	E-1	* IC251	B-16	Q103	B-5	R108	A-5	R317	G-4				
C113	B-4	C287	E-4	* C461	B-15	C2303	E-1	* IC271	F-15	* Q105	B-14	* R109	B-14	R318	F-4				
C114	B-5	C288	F-4	* C462	B-15	C2304	E-1	IC272	F-4	* Q107	B-14	* R110	B-14	R319	F-3				
C115	B-5	C289	F-4	* C463	B-15	C2305	E-1	IC301	G-5	Q151	B-3	* R111	B-14	R321	F-3				
C116	B-4	C290	F-4	C464	A-7	C2306	E-1	IC302	F-3	Q152	E-3	R112	B-5	R322	F-3				
C117	B-5	C291	F-4	* C465	C-16	C2307	E-1	* IC351	C-17	Q153	D-3	R113	B-5	R323	G-3				
* C119	C-14	C292	F-4	* C466	C-15	C2308	E-1	* IC352	D-16	Q154	D-3	R115	B-5	* R351	C-16				
* C121	B-13	C293	F-4	* C467	B-16	C2310	E-1	IC401	A-8	Q155	D-3	R116	B-4	* R353	D-16				
C122	B-4	C294	F-4	* C468	C-15	C2311	E-1	* IC402	B-10	Q156	D-3	R117	B-5	* R356	D-16				
* C123	B-13	C295	F-4	* C469	B-16	* C2312	B-18	* IC451	B-15	Q157	D-3	R118	B-4	* R363	D-17				
C124	B-4	C296	F-4	* C470	C-15	C2315	D-1	* IC452	A-15	Q159	E-2	R154	C-3	* R364	D-16				
C125	B-5	C297	F-4	* C471	B-15	C2316	D-1	* IC502	D-12	Q301	G-3	R155	C-3	* R365	D-16				
C126	B-5	* C298	F-14	* C472	C-15	C2317	D-1	IC503	C-7	Q302	G-4	R156	D-3	* R368	C-17				
C127	B-5	* C299	F-14	* C473	C-15	C2318	D-1	* IC504	D-12	Q303	G-4	R157	D-3	* R372	C-17				

— Continued on next page —

no mark : side A
* mark : side B

VC-272 BOARD

* R373	D-17	R806	E-8
* R379	D-17	R811	D-8
* R382	C-16	* R816	D-10
* R387	D-16	* R817	C-11
* R388	D-16	* R818	C-11
* R391	D-16	* R819	C-11
* R401	B-10	R820	E-7
* R402	B-10	* R905	B-17
* R404	C-10	* R906	B-17
* R417	B-11	* R907	A-17
R428	B-8	* R908	A-17
* R430	C-11	* R909	A-17
* R439	C-11	R2301	E-2
* R440	B-11	R2302	E-1
* R441	C-11	* R2307	C-18
* R442	C-11	R2310	D-1
R451	B-4	R2311	D-1
R452	B-4	R2312	D-1
R457	A-6	R2313	D-1
* R458	B-16	R2314	D-1
* R459	B-16	R2315	D-2
* R460	B-16	R2316	D-1
R461	B-6	R2317	D-1
R462	B-6	R2318	D-1
R464	A-6	R2319	D-1
R465	A-7	R2320	D-1
* R466	C-15	R2321	D-1
* R467	C-15		
* R468	B-15	RB001	E-8
* R469	B-15	RB101	B-5
* R470	C-15	RB102	B-4
* R471	B-15	RB151	B-3
* R472	B-15	RB272	F-4
* R474	B-15	RB302	G-3
* R480	C-15	* RB351	D-17
* R481	B-15	* RB352	D-17
* R482	B-16	* RB353	D-16
* R483	A-15	* RB401	A-10
* R484	A-15	* RB402	C-11
* R485	A-15	* RB403	B-11
* R486	A-15	* RB404	A-11
R502	B-7	RB407	B-8
* R503	D-12	* RB408	B-10
R507	D-7	* RB409	B-10
R508	D-7	RB451	B-4
R518	D-7	RB452	B-6
R519	D-7	RB501	C-6
R520	D-7	RB502	C-6
R521	D-7	RB503	C-6
R525	B-7	RB504	D-6
R542	B-7	RB505	D-6
R543	B-7	RB506	D-6
R552	C-8	RB507	D-7
R554	C-8	RB508	D-7
R558	C-8	RB509	B-8
* R559	D-12	RB510	C-8
R561	B-8	RB511	C-8
R562	B-7	RB512	B-7
R565	B-6	RB513	D-7
R567	B-7	RB514	A-7
R568	B-7	RB701	E-6
R569	D-6	RB704	D-6
* R611	C-11	* RB705	D-17
* R612	B-11	RB707	E-6
* R613	B-11	* RB801	E-10
* R614	B-11	* RB901	B-18
* R701	E-17	* RB902	B-18
* R702	E-17	RB2301	D-1
* R703	E-17	RB2302	D-1
* R704	E-17	RB2303	C-1
* R705	E-17		
* R706	D-17	T001	F-8
* R707	E-18		
R713	C-2	* VDR701	E-18
* R714	E-10	* VDR704	E-18
* R715	E-10	* VDR706	E-18
R716	E-7	* VDR707	E-18
R717	E-7		
R718	E-7	* X271	F-16
R719	E-7	* X401	C-10
R720	E-6	X501	B-7
R721	D-6	X502	B-8
R722	E-7	* X801	E-12
* R801	E-11	* X802	E-11
* R802	E-10		

SECTION 5
ADJUSTMENTS

1. Adjusting items when replacing main parts and boards.

When replacing main parts, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced parts: Block replacement: Lens device	Video light *2	ND901 (Fluorescent tube)	LCD901 (LCD panel)	LCD903 (LCD panel)	Mechanism deck *1	Mechanism deck M901 (Drum assy.) *1	Mechanism deck M902 (Capstan motor)	Parts replacement: CD-354 board IC2191 (CCD imager)	VC-272 board IC271, X271 (Timing generator)	VC-272 board IC272 (S/H, AGC)	VC-272 board IC151 (Camera, video process)	VC-272 board IC101 (REC/PB AMP)	VC-272 board IC2301 (Video out)	VC-272 board IC601 (EVR)	VC-272 board IC351 (Audio process)	SI-033 board SE750, 751(PITCH,YAW sensor) *3	PD-156 board IC5501 (RGB driver (LCD))	PD-156 board IC5502 (Timing generator (LCD))	VF-150 board IC2001 (RGB driver (EVF))	VF-150 board IC2002 (Timing generator (EVF))	LB-073 board D7702 (Back light LED (EVF))
Initialization of D, E, F, 7 page data	Initialization of D, E, F, 7 page data																						
	Modification of D, E, F, 7 page data																						
Camera	HALL adj.	●																					
	Flange back adj.	●								●													
	Color reproduction adj.									●		●											
	AWB & LV standard data input									●		●											
	Auto white balance adj.									●		●											
	Steady shot check *3																	●					
EVF	RGB AMP adj.																				●		
	Contrast adj.																				●		
LCD	VCO adj.																		●	●			
	RGB AMP adj.																		●				
	Contrast adj.																		●				
	COM-AMP adj.																		●				
	V-COM adj.				●														●				
	White balance adj.			●	●														●				
Servo	CAP FG offsett adj.						●		●														
	Switching position adj.						●	●															
Video	28MHz origin oscillation adj.										●					●							
	AFC fo adj.												●										
	Y OUT level adj.												●		●								
	C OUT level adj.												●		●								
	REC Y current adj.												●	●									
	REC C/AFM current adj.												●	●									
Audio	1.5MHz deviation adj.																●						
	BPF fo adj.																●						
Mechanism	Tape path adj.						●	●	●														

Table. 5-1-1 (1).

Adjustment Section	Adjustment	Board replacement: VC-272 board (COMPLETE)	Board replacement: SI-033 board (COMPLETE)	Board replacement: PD-156 board (COMPLETE)	Board replacement: VF-150 board (COMPLETE)	EEPROM: VC-272 board IC401	EEPROM: Supporting RadarW
Initialization of D, E, F, 7 page data	Initialization of D, E, F, 7 page data					●	
	Modification of D, E, F, 7 page data	●				●	
Camera	HALL adj.	●				●	●
	Flange back adj.	●				●	●
	Color reproduction adj.	●				●	
	AWB & LV standard data input	●				●	●
	Auto white balance adj.	●				●	●
	Steady shot check *3	●	●			●	●
EVF	RGB AMP adj.	●			●	●	●
	Contrast adj.	●			●	●	●
LCD	VCO adj.	●		●		●	
	RGB AMP adj.	●		●		●	
	Contrast adj.	●		●		●	
	COM-AMP adj.	●		●		●	
	V-COM adj.	●		●		●	
	White balance adj.	●		●		●	
Servo	CAP FG offsett adj.	●				●	●
	Switching position adj.	●				●	
Video	28MHz origin oscillation adj.					●	
	AFC fo adj.					●	●
	Y OUT level adj.					●	
	C OUT level adj.					●	
	REC Y current adj.					●	
	REC C/AFM current adj.					●	
Audio	1.5MHz deviation adj.					●	
	BPF fo adj.					●	
Mechanism	Tape path adj.						

Table. 5-1-1 (2).

*1: When replacing the drum assy. or mechanism deck, reset the data of page: 2, address: A2 to A4 to “00”. (Refer to “Record of Use check” of “5-4. SERVICE MODE”)
*2: When replacing the video light, reset the data of page:2, address: E0 to E2 to “00”.
*3: Steady shot model (CCD-TRV408E)

5-1. CAMERA SECTION ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools

• Oscilloscope • Color monitor • Vectorscope
• Regulated power supply • Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.4	J-6080-806-A	White balance check
	ND filter 0.1	J-6080-807-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjustment remote commander (RM-95 upgraded) (Note)	J-6082-053-B	
J-6	Siemens star chart	J-6080-875-A	For checking the flange back
J-7	Clear chart for pattern box	J-6080-621-A	
J-8	Multi CPC jig	J-6082-311-A	For adjusting the LCD block
J-9	CPC jig connector	J-6082-539-A	For connecting the adjustment remote commander
J-10	Minipattern box	J-6082-353-B	For adjusting the flange back
J-11	Camera base	J-6082-384-A	For adjusting the flange back
J-12	I/F unit for LANC control	J-6082-521-A	For connecting the adjustment remote commander

Note: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

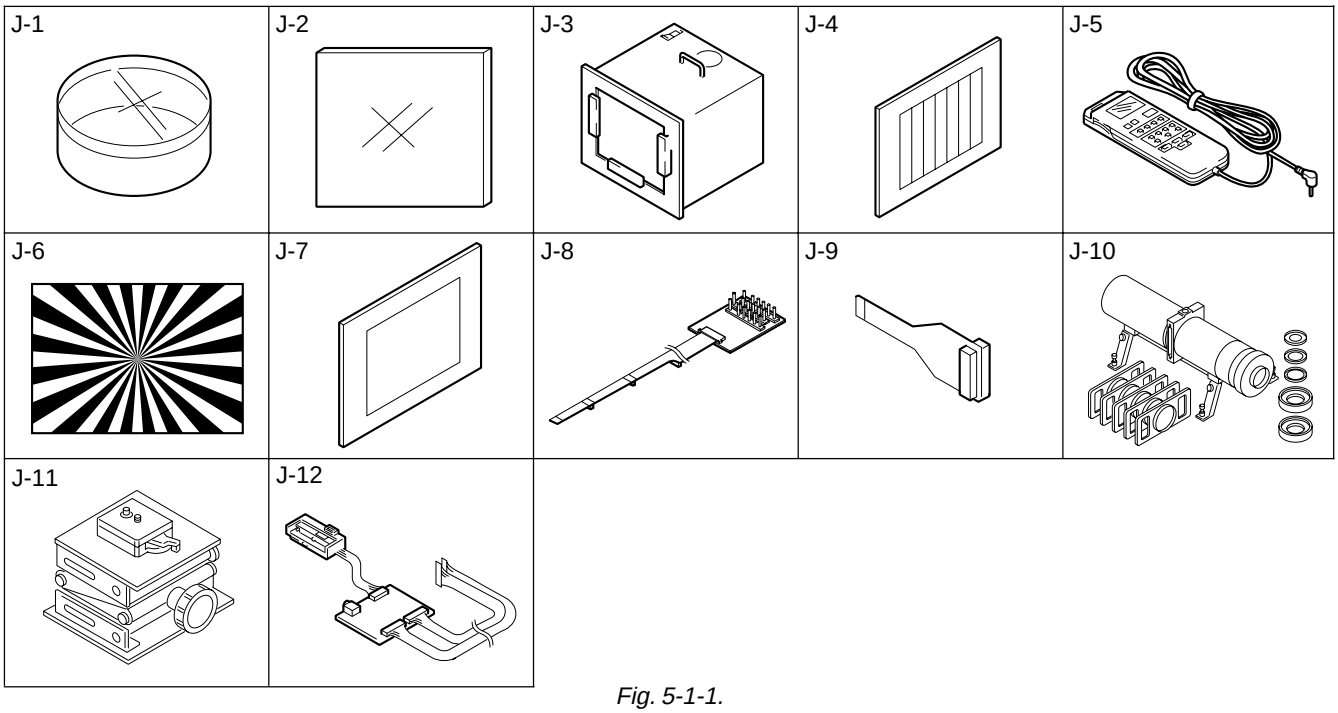


Fig. 5-1-1.

1-1-2. Preparations

Note1: For details of how remove the cabinet and boards, refer to "2. DISASSEMBLY".

Note2: When performing only the adjustments, the lens block and boards need not be disassembled.

1) Connect the equipment for adjustments according to Fig. 5-1-4.
2) Connect the adjustment remote commander to CN713 of VC-272 board via the I/F unit for LANC control (J-6082-521-A) and CPC jig connector (J-6082-539-A). To operate the adjustment remote commander, connect the AC power adapter to the DC IN jack of I/F unit for LANC control, or connect the L series Info-LITHIUM battery to the battery terminal of I/F unit for LANC control. (Fig. 5-1-3.)
3) The front panel block (SI-033 board, microphone unit, video light) need not be assembled except during the steady shot operation check.

Note3: As removing the cabinet (R) (removing the VC-272 board CN709) means removing the lithium 3V power supply (CF-2000 block BT001), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. If the cabinet (R) has been removed, the self-diagnosis data, data on history of use (total drum rotation time etc.) will be lost. Before removing, note down the self-diagnosis data (data of page: 2, address: B0 to C6) and data on history use (data of page: 2, address: A2 to AA and E0 to E2). (Refer to "5-4. Service Mode" for the self-diagnosis data and data on the history use.)

Note4: Setting the "Forced Camera Power ON" Mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button.
The above procedure will enable the camera power to be turned on with the SS-2000 block removed. After completing adjustments, be sure to exit the "Forced Camera Power ON Mode".

Note5: Exiting the "Forced Camera Power ON" Mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button.
3) Select page: 0, address: 01, and set data: 00.

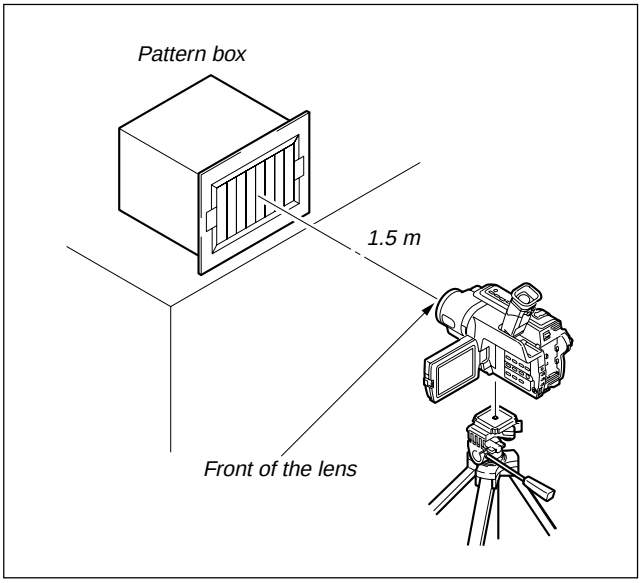


Fig. 5-1-2.

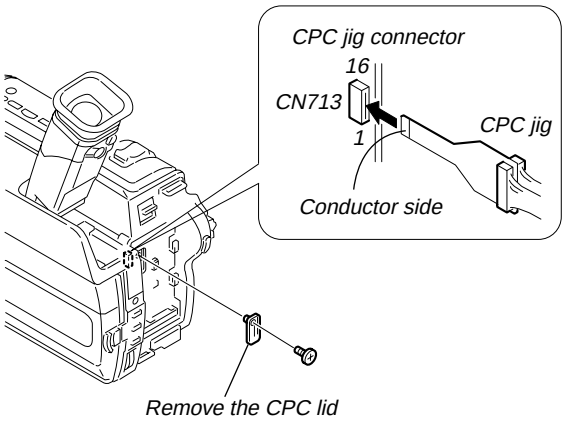


Fig. 5-1-3.

Note: Use either a AC power adaptor or a Info-LITHIUM battery as the power supply of the I/F unit for LANC control.

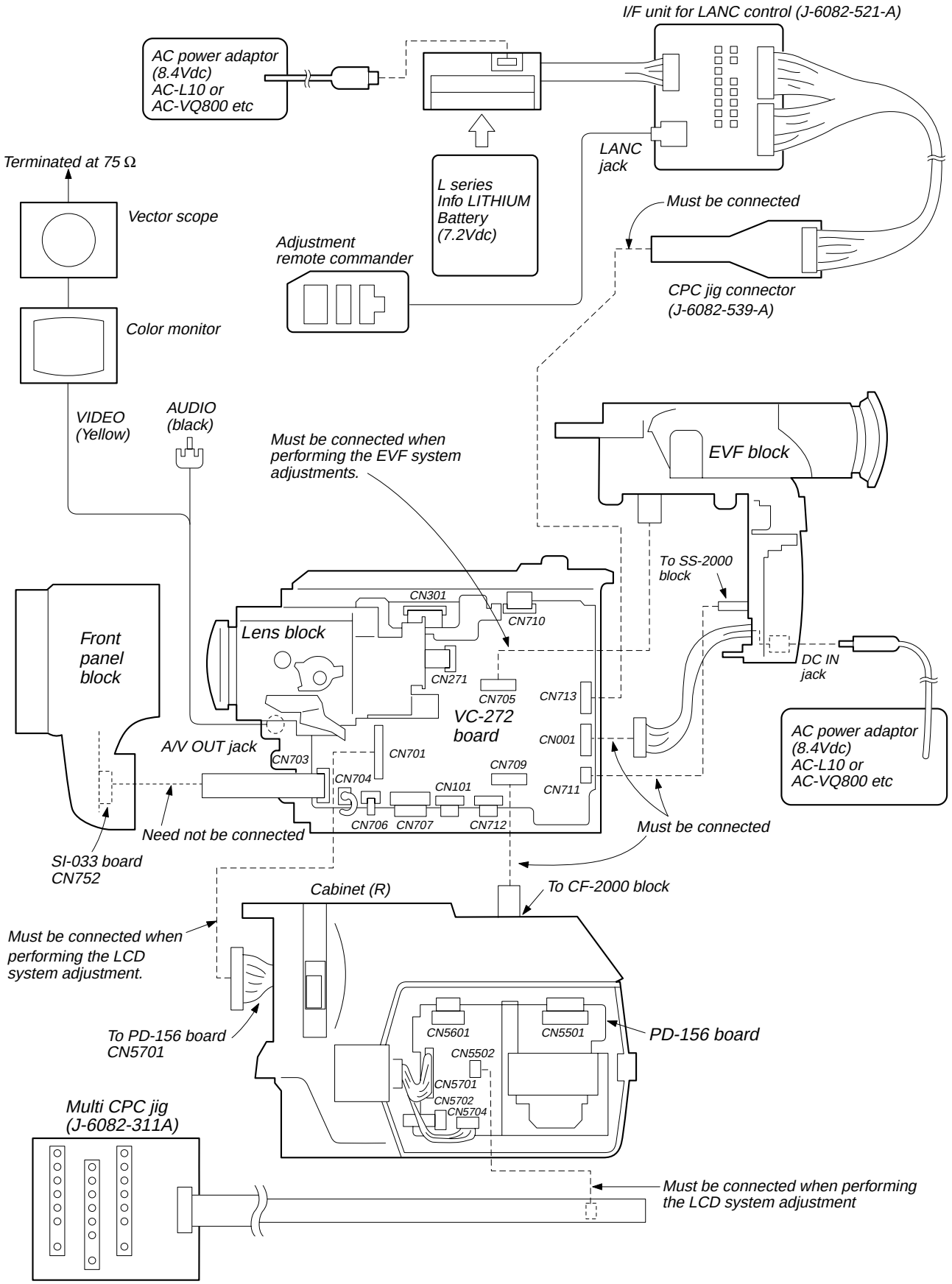


Fig. 5-1-4.

1-1-3. Precaution

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

1. POWER switch (SS-2000 block) ..... CAMERA
2. NIGHT SHOT switch (Lens block) ..... OFF
3. LIGHT switch (FK-2000 block) ..... OFF
4. DEMO MODE (Menu display) ..... OFF
5. DIGITAL ZOOM (Menu display) ..... OFF
6. STEADY SHOT (Menu display) *1 ..... OFF
7. DISPLAY (Menu display) ..... V-OUT/LCD
8. DISPLAY (CF-2000 block) ..... ON
9. FOCUS switch (CF-2000 block) ..... MANUAL
10. BACK LIGHT (CF-2000 block) ..... OFF
11. PROGRAM AE (Menu display) ..... OFF
12. PICTURE EFFECT (Menu display) ..... OFF
13. 16 : 9 WIDE (MENU display) ..... OFF

*1: Steady shot model (CCD-TRV408E)

2. Order of Adjustments

Basically carry out adjustments in the order given.

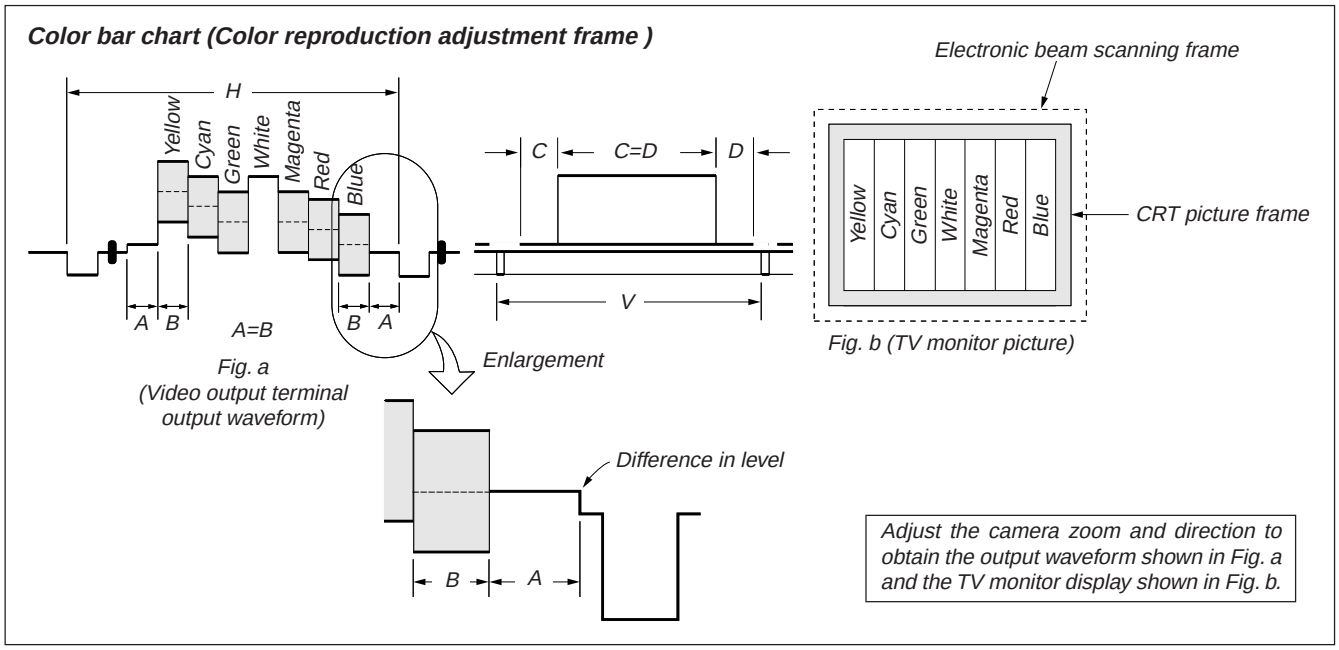


Fig. 5-1-5.

3. Subjects

1) Color bar chart (Color reproduction adjustment frame)
   When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 5-1-5. (Color reproduction adjustment frame)
2) Clear chart (Color reproduction adjustment frame)
   Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time.)
3) Flange back adjustment chart
   Make the chart shown in Fig. 5-1-6. using A0 size (1189mm × 841mm) black and white vellum paper.

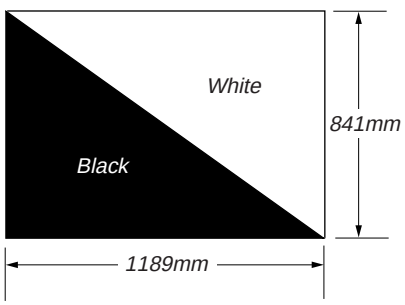


Fig. 5-1-6.

Note: Use matte vellum paper bigger than A0, and make sure the edges of the black and white paper joined together are not rough.

1-2. INITIALIZATION OF D, E, F, 7 PAGE DATA

1. Initializing the D, E, F, 7 Page Data

Note1: If "Initializing the D, E, F, 7 Page Data" is performed, all data of the D page, E page, F page and 7 page will be initialized. (It is impossible to initialize a single page.)

Note2: If the D, E, F, 7 page data has been initialized, "Modification of D, E, F, 7 Page Data" and all adjustments need to be performed again.

Adjusting page	D
Adjusting Address	10 to 7F
Adjusting page	F
Adjusting Address	10 to FF
Adjusting page	E
Adjusting Address	00 to FF
Adjusting page	7
Adjusting Address	00 to 6B

Initializing Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	00	51	Set the data.
3	6	01	51	Set the data, and press PAUSE button.
4	6	02		Check that the data changes to "01".
5	2	00	29	Set the data
6	2	01	29	Set the data, and press the PAUSE button.
7				Perform "Modification of D, E, F, 7 Page Data".

2. Modification of D, E, F, 7 Page Data

If the D, E, F, 7 page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of D, E, F, 7 Page data

Order	Page	Address	Data	Procedure
1	2	00	29	Set the data
2	2	01	29	Set the data, and press the PAUSE button.

Note: If the following symptoms occur after completing of the "Modification of D, E, F, 7 page data", check that the data of the "Fixed data-2" addresses of D page are same as those of the same model of the same destination.
1) The self-diagnosis code "E:20:00" on the LCD or viewfinder screen is flashing.
2) The power is shut off so that unit cannot operate.

3. D Page Table

Note1: Fixed data-1: Initialized data. (Refer to "1. Initializing the D, E, F, 7 Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of D, E, F, 7 Page Data".)

Address	Initial data	Remark
00 to 0F		
10	00	Test mode
11 to 12		Fixed data-1
13		Fixed data-2
14 to 19		Fixed data-1
1A		Fixed data-2
1B to 21		Fixed data-1
22		Fixed data-2
23 to 26		Fixed data-1
27		Fixed data-2
28 to 33		Fixed data-1
34		Fixed data-2
35		
36		Fixed data-1
37		Fixed data-2
38		(Modified data. Copy the data built in
39		the same model.)
3A to 3B		Fixed data-1
3C		Fixed data-2
3D		
3E to 40		Fixed data-1
41		Fixed data-2
42		(Modified data. Copy the data built in
43		the same model.)
44		
45		
46		
47		
48		
49		
4A		
4B		
4C		
4D		
4E		
4F		
50		

D page

Address	Initial data	Remark
51 to 52		Fixed data-1
53		Fixed data-2
54		Fixed data-1
55		Fixed data-2
56 to 57		Fixed data-1
58		Fixed data-2 (Modified data. Copy the data built in the same model.)
59		
5A		
5B		
5C		
5D to 5E		Fixed data-1
5F		Fixed data-2
60 to 72		Fixed data-1
73		Fixed data-2
74 to 7B		Fixed data-1
7C		Fixed data-2
7D to 7F		Fixed data-1

Table. 5-1-2.

4. F Page table

Note1: Fixed data-1: Initialized data. (Refer to "1. Initializing the D, E, F, 7 Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of D, E, F, 7 Page Data".)

Address	Initial data	Remark
00 to 0F		
10	00	Emergency memory address
11	00	
12	00	
13	00	
14	00	
15	00	
16	00	
17	00	
18	00	
19	00	
1A	00	
1B	00	
1C		Fixed data-2
1D		
1E to 21		Fixed data-1
22		Fixed data-2
23 to 2F		Fixed data-1
30	68	HALL adj.
31	80	
32	8D	
33		Fixed data-2
34	80	AWB & LV standard data input
35	7A	
36	2B	
37	80	
38	65	
39	80	
3A	8D	Auto white balance adj.
3B	87	
3C to 3D		Fixed data-1
3E	FB	Color reproduction adj.
3F	33	
40	C8	
41	34	
42 to 44		Fixed data-1
45	8C	28MHz origin osc. Adj.
46	28	Flange back adj.
47	07	
48	3A	
49	4A	
4A	12	
4B	0B	
4C	54	
4D	00	
4E	19	
4F	00	
50	37	
51	00	
52	00	
53	04	

F page

Address	Initial data	Remark
54	00	Flange back adj.
55	00	
56		Fixed data-2
57		
58	00	Flange back adj.
59	83	CAP FG offset adj.
5A	0A	Switching position adj.
5B	00	
5C		Fixed data-1
5D	50	AFC fo adj.
5E	62	Y OUT level adj.
5F	62	C OUT level adj.
60 to 61		Fixed data-1
62	D7	REC Y current adj.
63	D7	
64 to 68		Fixed data-1
69	A0	REC C/AFM current adj.
6A to 72		Fixed data-1
73	A6	1.5MHz deviation adj.
74	80	BPF fo adj.
75		Fixed data-1
76		Fixed data-2
77 to 79		Fixed data-1
7A		Fixed data-2
7B to 85		Fixed data-1
86		Fixed data-2
87 to 93		Fixed data-1
94		Fixed data-2
95 to AB		Fixed data-1
AC		Fixed data-2
AD to AE		Fixed data-1
AF	FC	Color reproduction adj.
B0	F2	
B1	11	
B2	33	
B3 to B6		Fixed data-1
B7		Fixed data-2
B8		
B9 to C2		Fixed data-1
C3		Fixed data-2
C4 to DB		Fixed data-1
DC		Fixed data-2 (Modified data. Copy the data built in the same model.)
DD		
DE		
DF		
E0		
E1		Fixed data-1
E2		Fixed data-2
E3		
E4 to E8		Fixed data-1
E9		Fixed data-2 (Modified data. Copy the data built in the same model.)
EA		
EB		
EC		
ED		
EE		

Address	Initial data	Remark
EF to F1		Fixed data-1
F2		Fixed data-2
F3		
F4 to FF		Fixed data-1

Table. 5-1-3.

5. E Page Table

Note: Fixed data-1: Initialized data. (Refer to "1. Initializing the D, E, F, 7 Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of D, E, F, 7 Page Data".)

Address	Remark
00 to 06	Fixed data-1
07	Fixed data-2
08 to 09	Fixed data-1
0A	Fixed data-2
0B	Fixed data-1
0C	Fixed data-2
0D	
0E	Fixed data-1
0F	Fixed data-2
10 to 15	Fixed data-1
16	Fixed data-2
17 to 1E	Fixed data-1
1F	Fixed data-2
20	Fixed data-1
21	Fixed data-2
22 to 23	Fixed data-1
24	Fixed data-2
25	Fixed data-1
26	Fixed data-2
27 to 39	Fixed data-1
3A	Fixed data-2
3B to 42	Fixed data-1
43	Fixed data-2
44 to 50	Fixed data-1
51	Fixed data-2
52	
53	Fixed data-1
54	Fixed data-2
55 to FF	Fixed data-1

Table. 5-1-4

6. 7 Page Table

Note: Fixed data-1: Initialized data. (Refer to "1. Initializing the D, E, F, 7 Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of D, E, F, 7 Page Data".)

Address	Initial data	Remark
00 to 2C		Fixed data-1
2D		Fixed data-2
2E to 30		Fixed data-1
31		Fixed data-2 (Modified data. Copy the data built in the same model.)
32		
33		
34		Fixed data-1
35		Fixed data-2
36	A0	RGB AMP adj. (EVF)
37 to 39		Fixed data-1
3A	2F	Contrast adj. (EVF)
3B to 40		Fixed data-1
41		Fixed data-2
42		
43	6E	VCO adj. (LCD)
44	63	
45	8E	V COM adj. (LCD)
46	29	RGB AMP adj. (LCD)
47		Fixed data-1
48	C3	COM AMP adj.(LCD)
49	60	White balance adj.(LCD)
4A	65	
4B	50	Contrast adj.(LCD)
4C to 53		Fixed data-1
54		Fixed data-2
55		
56 to 6B		Fixed data-1

Table. 5-1-5.

1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, check that the specified values of "VIDEO SYSTEM ADJUSTMENTS" are satisfied.

1. HALL Adjustment RadarW

For detecting the position of the lens iris, adjust AMP gain and offset.

Subject	Not required
Measurement Point	Display data of page 1 (Note1)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	30, 31, 32
Specified Value 1	86 to 8A
Specified Value 2	15 to 19

Note1: Displayed data of page 1 of the adjustment remote commander.

1 : 00 : XX
└ IRIS display data

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	94	88	Set the data.
3	6	95	17	Set the data.
4	6	01	6D	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to "01". (Note2)
6	6	01	00	Set the data, and press PAUSE button.

Note2: The adjustment data will be automatically input to page: F, address: 30, 31, 32.

Checking method:

Order	Page	Address	Data	Procedure
1	0	03	03	Set the data.
2	6	01	01	Set the data, and press PAUSE button.
3	1			Check that the IRIS display data (Note1) satisfies the specified value 1.
4	6	01	03	Set the data, and press PAUSE button.
5	1			Check that the IRIS display data (Note1) satisfies the specified value.2.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	94	00	Set the data.
2	6	95	00	Set the data.
3	6	01	00	Set the data, and press PAUSE button.
4	0	03	00	Set the data.
5	0	01	00	Set the data.

2. Flange Back Adjustment (Using Minipattern Box) RadarW

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Siemens star chart with ND filter for the minipattern box (Note1)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	46 to 55, 58

Note1: Dark Siemens star chart.
Note2: Check that the data of page: 6, address: 02 is "00". If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.
Note3: Make the lens horizontal and perform this adjustment.
Note4: 1/4 CCD model: CCD-TRV408E
1/6 CCD model: CCD-TRV107E/TRV108E/TRV208E

Switch setting:

NIGHT SHOT (Lens block) ..... OFF

Preparations:

1) The minipattern box is installed as shown in the following figure.
Note: The attachment lenses are not used.
2) Install the minipattern box so that the distance between it and the front of the lens of the camcorder is less than 3cm.
3) Make the height of the minipattern box and the camcorder equal.
4) Check that the output voltage of the regulated power supply is the specified voltage.
5) Check that at both the zoom lens TELE end and WIDE end, the center of the Siemens star chart and center of the exposure screen coincide.

Specified voltage: The specified voltage varies according to the minipattern box, so adjust the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

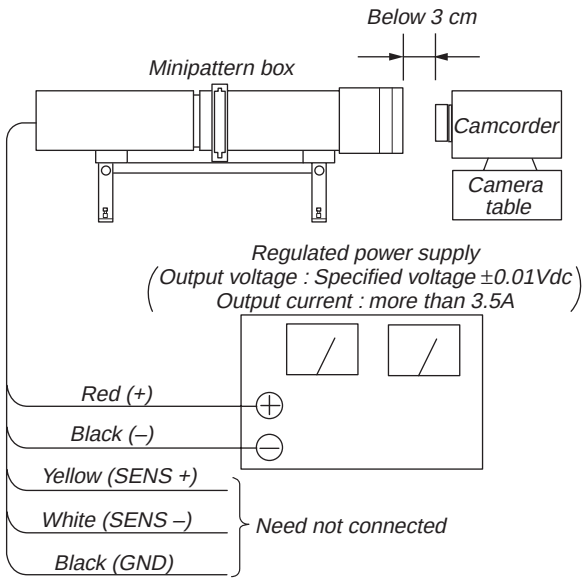


Fig. 5-1-7.

Adjusting method for 1/4 CCD model:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	F	86		Write down the data.
3	F	86	00	Set the data and press PAUSE button.
4	6	01	13	Set the data, and press PAUSE button.
5	6	01	27	Set the data, and press PAUSE button.
6	6	02		Check that the data changes to "01". (Note5)
7	F	86		Set the data that is written down at step 2 and press PAUSE button.

Note5: The adjustment data will be automatically input to page: F, address: 46 to 55, 58.

Adjusting method for 1/6 CCD model:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	13	Set the data, and press PAUSE button.
3	6	01	27	Set the data, and press PAUSE button.
4	6	02		Check that the data changes to "01". (Note5)

Note5: The adjustment data will be automatically input to page: F, address: 46 to 55, 58.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	01	00	Set the data.
3				Turn off the power and turn on again.
4				Perform "Flange Back Check".

3. Flange Back Adjustment RadarW (Using Flange Back Adjustment Chart and Subject More Than 500m Away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

3-1. Flange Back Adjustment (1)

Subject	Flange back adjustment chart (2.0 m from the front of the protection glass) (Luminance: 200 ± 30 lux)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	46 to 55, 58

Note1: Check that the data of page: 6, address: 02 is "00". If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.
Note2: Make the lens horizontal and perform this adjustment.
Note3: 1/4 CCD model: CCD-TRV408E
1/6 CCD model: CCD-TRV107E/TRV108E/TRV208E

Switch setting:

NIGHT SHOT (Lens block) ..... OFF

Adjusting method for 1/4 CCD model:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	F	86		Write down the data.
3	F	86	00	Set the data and press PAUSE button.
4	6	01	13	Set the data, and press PAUSE button.
5	6	01	15	Set the data, and press PAUSE button.
6	6	02		Check that the data changes to "01". (Note4)
7	F	86		Set the data that is written down at step 2 and press PAUSE button.

Note4: The adjustment data will be automatically input to page: F, address: 46 to 55, 58.

Adjusting method for 1/6 CCD model:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	13	Set the data, and press PAUSE button.
3	6	01	15	Set the data, and press PAUSE button.
4	6	02		Check that the data changes to "01". (Note4)

Note4: The adjustment data will be automatically input to page: F, address: 46 to 55, 58.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2				Turn off the power and turn on again.
3				Perform "Flange Back Adjustment (2)"

3-2. Flange Back Adjustment (2)

Perform this adjustment after performing "Flange Back Adjustment (1)".

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	46 to 55, 58

Note1: Check that the data of page: 6, address: 02 is "00". If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.
Note2: Make the lens horizontal and perform this adjustment.

Switch setting:

NIGHT SHOT (Lens block) ..... OFF

Preparations:

1) Set the zoom lens to the TELE end and expose a subject that is more than 500m away (subject with clear contrast such as building, etc.). (Nearby subjects less than 500m away should not be in the screen.)

Adjusting method for 1/4 CCD model:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	F	86		Write down the data.
3	F	86	00	Set the data and press PAUSE button.
4	6	01	13	Set the data, and press PAUSE button.
5				Place a ND filter on the lens so that the optimum image is obtain.
6	6	01	29	Set the data, and press PAUSE button.
7	6	02		Check that the data changes to "01". (Note3)
8	F	86		Set the data that is written down at step 2 and press PAUSE button.

Note3: The adjustment data will be automatically input to page: F, address: 46 to 55, 58.

Adjusting method for 1/6 CCD model:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	13	Set the data, and press PAUSE button.
3				Place a ND filter on the lens so that the optimum image is obtain.
4	6	01	29	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to "01". (Note3)

Note3: The adjustment data will be automatically input to page: F, address: 46 to 55, 58.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	01	00	Set the data.
3				Turn off the power and turn on again.
4				Perform "Flange Back Check".

4. Flange Back Check

Subject	Siemens star (2.0m from the front of the lens) (Luminance : approx. 200 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Note: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page 1 of the adjustment remote commander.
1) Select page: 0, address: 03, and set data: 0F.
2) Page 1 shows the state of the focus.

1 : 00 : XX
- Odd: Focused
- Even: Unfocused

Switch setting:
NIGHT SHOT (Lens block) ..... OFF

Checking method:
1) Select page: 6, address: 40, and set data: 02.
2) Select page: 6, address: 41, and set data: 01.
3) Place the Siemens star 2.0m from the front of the lens.
4) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
5) Shoot the Siemens star with the zoom TELE end.
6) Turn on the auto focus.
7) Check that the lens is focused (Note).
8) Select page: 6, address: 21, and set data: 10.
9) Shoot the Siemens star with the zoom WIDE end.
10) Observe the TV monitor and check that the lens is focused.

Processing after Completing Adjustments:
1) Select page: 6, address: 21, and set data: 00.
2) Select page: 6, address: 40, and set data: 00.
3) Select page: 6, address: 41, and set data: 00.
4) Select page: 0, address: 03, and set data: 00.

5. Picture Frame Setting

Subject	Color bar chart (Color reproduction adjustment frame) (1.5m from the front of the lens)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A=B, C=D, E=F

Note: The following adjustments should be carried out upon completion of "Flange back adjustment".

Switch setting:
1) NIGHT SHOT (Lens block) ..... OFF
2) DIGITAL ZOOM (Menu display) ..... OFF
3) STEADY SHOT (Menu display) ..... OFF
4) LIGHT (FK-2000 block) ..... OFF

Setting method:
1) Adjust the zoom and the camera direction, and set to the specified position.
2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "Color reproduction adjustment frame".

Check on the oscilloscope

1. Horizontal period

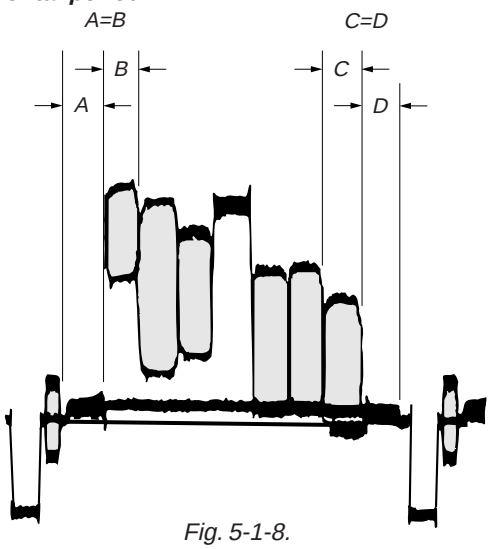


Fig. 5-1-8.

2. Vertical period

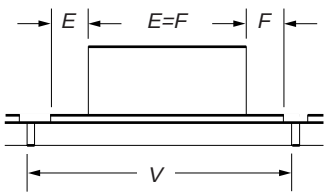


Fig. 5-1-9.

Check on the monitor TV (Underscanned mode)

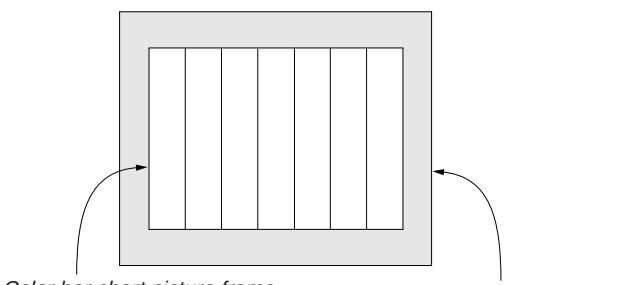


Fig. 5-1-10.

6. Color Reproduction Adjustment

Adjust the color Separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	3F, 41, AF, B0
Specified Value	All color luminance points should settle within each color reproduction frame.

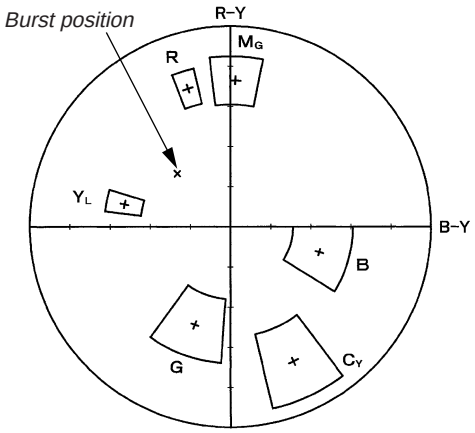


Fig. 5-1-11.

Switch setting:

1) NIGHT SHOT (Lens block) ..... OFF
2) DIGITAL ZOOM (Menu display) ..... OFF
3) STEADY SHOT (Menu display) ..... OFF
4) LIGHT (FK-2000 block) ..... OFF

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 77, and write down the data.
3) Select page: F, address: 77, set data: 29 and press the PAUSE button.
4) Select page: F, address: 2B, set data: 97 and press the PAUSE button.
5) Select page: 6, address: 01, set data: 3D, and press the PAUSE button.
6) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
7) Change the data of page: F, address: 3F, 41, AF and B0, settle each color luminance point in each color reproduction frame.

Note: Be sure to press the PAUSE button of the adjustment remote commander before changing the addresses. If not, the new data will not be written to the memory.

Processing after Completing Adjustments:

1) Select page: F, address: 77, set the data written down at step 2), and press the PAUSE button.
2) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
3) Select page: 0, address: 01, and set data: 00.

7. Auto White Balance & LV Standard Data Input RadarW

Adjust the white balance reference at 3200K, and adjust the normal coefficient of the light value.

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	34 to 39

Note1: This adjustment should be carried out upon completion of "Color reproduction adjustments".

Note2: After the power is turned on, this adjustment can be done only once.

Note3: Check that the data of page: 6, address: 02 is "00". If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

Switch setting:

1) NIGHT SHOT (Lens block) ..... OFF
2) DIGITAL ZOOM (Menu display) ..... OFF
3) STEADY SHOT (Menu display) ..... OFF
4) LIGHT (FK-2000 block) ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2				Wait for 2 sec.
3	6	01	11	Set the data, and press PAUSE button.
4	6	01	0D	Set the data, and press PAUSE button
5	6	02		Check that the data changes to "01". (Note4)

Note4: The adjustment data will be automatically input to page: F, address: 34 to 39.

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	01	00	Set the data.
3				Perform "Auto White Balance Adjustment".

8. Auto White Balance Adjustment RadarW

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Measurement Point	Display data of page 1 (Note4)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	3A, 3B
Specified Value	1/6 CCD model: R ratio: 2A80 to 2B80 B ratio: 6100 to 6200 1/4 CCD model: R ratio: 2B00 to 2C00 B ratio: 5E00 to 5F00

Note1: 1/6 CCD model: CCD-TRV107E/TRV108E/TRV208E
1/4 CCD model: CCD-TRV408E

Note2: After the power is turned on, this adjustment can be done only once.

Note3: Perform "Auto White Balance & LV Standard Data Input" before this adjustment.

Note4: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX
└──── Display data

Switch setting:

1) NIGHT SHOT (Lens block) ..... OFF
2) DIGITAL ZOOM (Menu display) ..... OFF
3) STEADY SHOT (Menu display) ..... OFF
4) LIGHT (FK-2000 block) ..... OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter for color temperature correction on the lens.
2	0	01	01	Set the data.
3	F	90		Write down the data.
4	F	90	2B	Set the data, and press PAUSE button.
5	F	91		Write down the data.
6	F	91		Set the following data, and press PAUSE button. 00: 1/6 CCD model 80: 1/4 CCD model
7	F	92		Write down the data.
8	F	92		Set the following data, and press PAUSE button. 61: 1/6 CCD model 5E: 1/4 CCD model
9	F	93		Write down the data.
10	F	93	80	Set the data, and press PAUSE button.
11	6	01	A7	Set the data, and press PAUSE button.
12				Wait for 2 sec.
13	6	01	A5	Set the data, and press PAUSE button.
14	6	02		Check that the data changes to "01". (Note5)
15	6	01	3F	Set the data, and press PAUSE button.
16	0	03	04	Set the data.
17	1			Check that the display data (Note4) satisfies the R ratio specified value.
18	0	03	05	Set the data.
19	1			Check that the display data (Note4) satisfies the B ratio specified value.

Note5: The adjustment data will be automatically input to page: F, address: 3A, 3B.

Processing after Completing Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	F	90		Set the data that is written down at step 3, and press PAUSE button.
3	F	91		Set the data that is written down at step 5, and press PAUSE button.
4	F	92		Set the data that is written down at step 7, and press PAUSE button.
5	F	93		Set the data that is written down at step 9, and press PAUSE button.
6	0	03	00	Set the data.
7	0	01	00	Set the data.

9. White Balance Check RadarW

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.4 and 0.1
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 5-1-12. A to B

Switch setting:

1) NIGHT SHOT (Lens block) ..... OFF
2) DIGITAL ZOOM (Menu display) ..... OFF
3) STEADY SHOT (Menu display) ..... OFF
4) LIGHT (FK-2000 block) ..... OFF

Checking method:

Order	Page	Address	Data	Procedure
				Indoor white balance check
1				Check that the lens is not covered with either filter.
2	6	01	0F	Set the data, and press PAUSE button.
3				Check that the center of the white luminance point is within the circle shown Fig. 5-1-12. A.
4	6	01	00	Set the data, and press PAUSE button.
				Outdoor white balance check
5	6	01	3F	Set the data, and press PAUSE button.
6				Place the C14 filter on the lens.
7				Check that the center of the white luminance point is within the circle shown Fig. 5-1-12. B.
8				Remove the C14 filter.
				LV data check
9				Place the ND filter 1.5 (1.0 + 0.1 + 0.4) on the lens.
10	6	01	0F	Set the data, and press PAUSE button.
11				Wait for 2 sec.
12	0	03	06	Set the data.
13	1			Check that the display data (Note) satisfies the specified value. Specified value: 0000 to 0BC0

Note: Displayed data of the adjustment remote commander.

1 : XX : XX
└ Display data

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	0	03	00	Set the data.

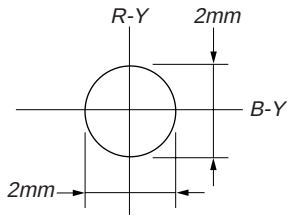


Fig. 5-1-12. (A)

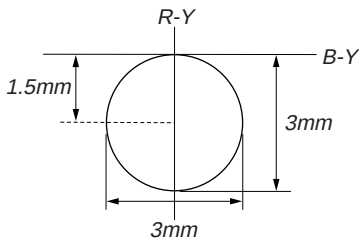


Fig. 5-1-12. (B)

10. Steady Shot Check (CCD-TRV408E) RadarW

Precautions on the Parts Replacement

There are two types of repair parts.

Type A: ENC03JA

Type B: ENC03JB

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations. After replacing, check the steady shot operation according to the following method.

Precautions on Angular Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

Subject	Arbitrary
Measurement Point	Display data of page 1 (Note)
Measuring Instrument	Adjustment remote commander
Specified Value	2700 to 5100

Note: Displayed data of the adjustment remote commander.

1 : XX : XX

Display data

Switch setting:

1) STEADY SHOT (Menu display) ..... ON
2) ZOOM ..... TELE end

Checking method:

Order	Page	Address	Data	Procedure
				Pitch sensor check (SI-033 board SE750)
1	0	03	11	Set the data.
2	1			Check that the display data (Note1) satisfies the specified value.
				Yaw sensor check (SI-033 board SE751)
3	0	03	12	Set the data.
4	1			Check that the display data (Note1) satisfies the specified value.
				Steady shot check
5				Move the camcorder, and check that the steady shot operations have been performed normally

Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	0	03	00	Set the data.

1-4. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT

Note : When replacing the LCD unit, be careful to prevent damages caused by static electricity.

[Adjusting connector]

Most of the measuring points for adjusting the viewfinder system are concentrated in CN713 of VC-272 board.
Connect the Measuring instruments and the adjustment remote commander via the I/F unit for LANC control (J-6082-521-A) and CPC jig connector (J-6082-539-A) to CN713. To operate the adjustment remote commander, connect the AC power adapter to the DC IN jack of I/F unit for LANC control, or connect the L series Info-LITHIUM battery to the battery terminal of I/F unit for LANC control.
The following table shows the Pin No. and signal name of CN713.

Pin No.	Signal Name	Pin No.	Signal Name
1	N.C.	9	PB RF
2	IR VIDEO	10	REG GND
3	BPF MONI	11	LANC OUT
4	CAP FG	12	LANC IN
5	RF SWP	13	XLANC POWER ON
6	REG GND	14	EVF VG
7	REC RF	15	VCO
8	REG GND	16	N.C.

Table 5-1-6.

The following table shows the arrangement of the test points of I/F unit for LANC control. (Pin No. are those of CN713.)

Pin No.	Signal Name	Pin No.	Signal Name
	BL	15	EVF VCO
14	EVF VG		BL 4.75
9	PB RF (MON)		
3	BPF MONI	6,8,10	GND
	TMS	7	REC RF (RF IN)
	TDI		TDO
5	SWP		TCK
4	CAP FG	2	IR VIDEO

Table 5-1-7.

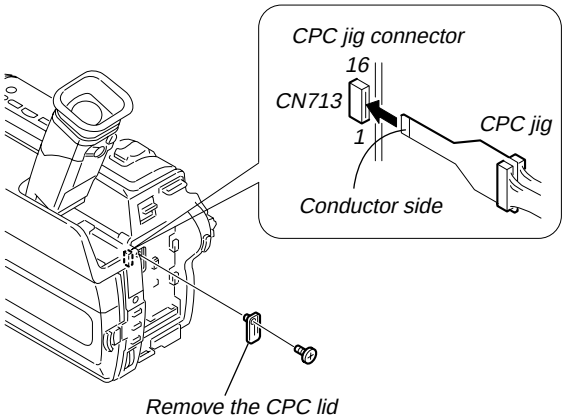


Fig. 5-1-13.

1. RGB AMP Adjustment (VF-150 board)

Set the D range of the RGB driver used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Note: Do either of the automatic adjustment or the manual adjustment.

1-1. Automatic Adjustment RadarW

Mode	Camera
Subject	Arbitrary
Adjustment Page	7
Adjustment Address	36

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	E3	Set the data, and press PAUSE button.
3	6	02		Check that the data changes from "00" to "01".
4	6	01	00	Set the data, and press PAUSE button.
5	0	01	00	Set the data.

1-2. Manual Adjustment

Mode	Camera
Subject	Arbitrary
Measurement Point	EVF VG (Pin ⑭ of CN713 of VC-272 board)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	36
Specified Value	A = 7.22 ± 0.27V

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	7	36		Change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
3	7	36		Press PAUSE button.
4	0	01	00	Set the data.

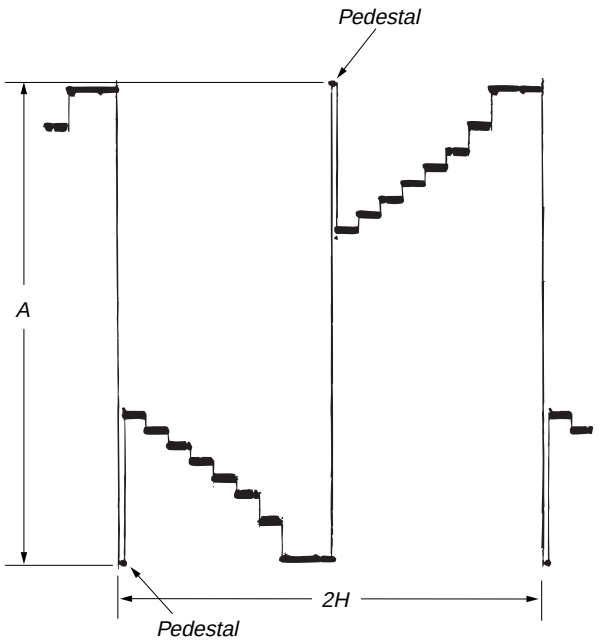


Fig. 5-1-14.

2. Contrast Adjustment (VF-150 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Note: Do either of the automatic adjustment or the manual adjustment.

2-1. Automatic Adjustment RadarW

Mode	Camera
Subject	Arbitrary
Adjustment Page	7
Adjustment Address	3A

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	E5	Set the data, and press PAUSE button.
3	6	02		Check that the data changes from “00” to “01”.
4	6	01	00	Set the data, and press PAUSE button.
5	0	01	00	Set the data.

2-2. Manual Adjustment

Mode	Camera
Subject	Arbitrary
Measurement Point	EVF VG (Pin ⑭ of CN713 of VC-272 board)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	3A
Specified Value	A = 2.28± 0.12V

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	7	3A		Change the data and set the voltage (A) between the 100 IRE and 0 IRE (pedestal) to the specified value. (The data should be “00” to “7F”.)
3	7	3A		Press PAUSE button.
4	0	01	00	Set the data.

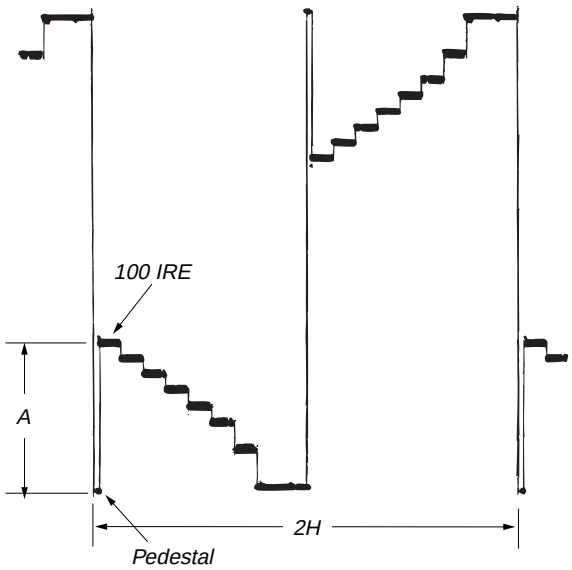


Fig. 5-1-15.

1-5. LCD SYSTEM ADJUSTMENT

Note 1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.

Note 2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.

Note 3: Set the LCD BRIGHT (Menu display) to the center.
Set the LCD COLOR (Menu display) to the center.

Note 4: Connect the adjustment remote commander to CN713 of VC-272 board via the I/F unit for LANC control (J-6082-521-A) and CPC jig connector (J-6082-539-A). To operate the adjustment remote commander, connect the AC power adapter (8.4Vdc) to the DC IN jack of I/F unit for LANC control, or connect the L series Info-LITHIUM battery to the battery terminal of I/F unit for LANC control.

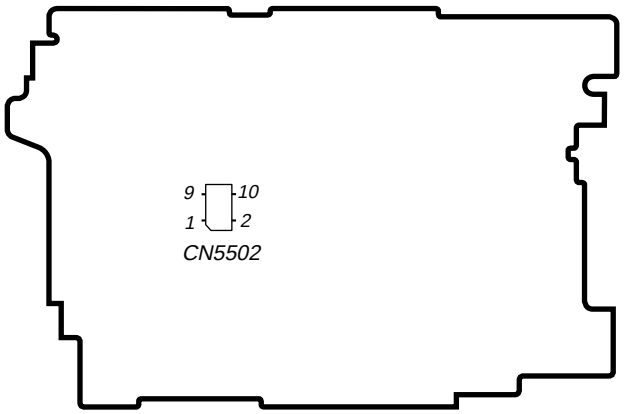
[Adjusting connector]

Most of the measuring points for adjusting the LCD system are concentrated in CN5502 of the PD-156 board. Connect the measuring instruments via the multi CPC jig (J-6082-311-A). The following table shows the Pin No. and signal name of CN5502.

Pin No.	Signal Name	Pin No.	Signal Name
1	VB	2	XVD OUT
3	VG	4	PANEL COM
5	VR	6	PANEL ID
7	C-SYNC/XHD	8	XHD OUT
9	GND	10	GND

Table 5-1-8.

PD-156 board



1. VCO Adjustment (PD-156 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑧ of CN5502 (XHD OUT)
Measuring Instrument	Frequency counter
Adjustment Page	7
Adjustment Address	43, 44
Specified Value	f = 15625 ± 30Hz

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	7	43		Change the data and set the VCO frequency (f) to the specified value.
3	7	43		Press PAUSE button.
4	7	43		Read the data, and this data is named D_{43}.
5				Convert D_{43} to decimal notation, and obtain D_{43}'. (Note)
6				Calculate D_{44}' using following equations (Decimal calculation) When $D_{43}' \geqq 20$ $D_{44}' = D_{43}' - 20$ When $D_{43}' < 20$ $D_{44}' = 00$
7				Convert D_{44}' to a hexadecimal number, and obtain D_{44}. (Note)
8	7	44	D_{44}	Set the data, and press PAUSE button.
9	0	01	00	Set the data.

Note: Refer to "Table 5-4-1. Hexadecimal-decimal Conversion Table".

2. RGB AMP Adjustment (PD-156 board)

Set the D range of the RGB decoder used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ③ of CN5502 (VG) External trigger: Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	46
Specified Value	A = 3.62 ± 0.05V

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	7	46		Change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value. (The data should be "00" to "3F".)
3	7	46		Press PAUSE button.
4	0	01	00	Set the data.

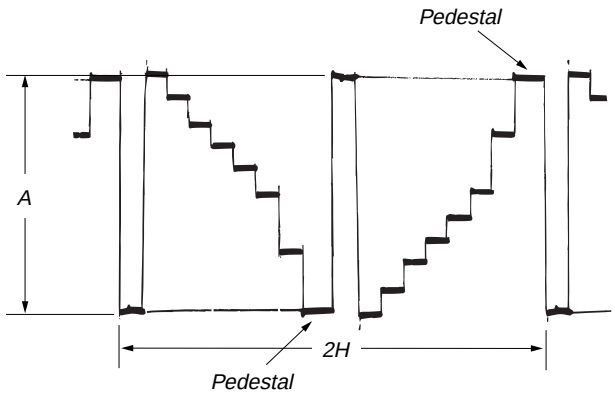


Fig. 5-1-16.

3. Contrast Adjustment (PD-156 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ③ of CN5502 (VG) External trigger: Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	4B
Specified Value	A = 3.52 ± 0.07V

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	7	4B		Change the data and set the voltage (A) between the 100 IRE and 0 IRE (pedestal) to the specified value. (The data should be "00" to "7F".)
3	7	4B		Press PAUSE button.
4	0	01	00	Set the data.

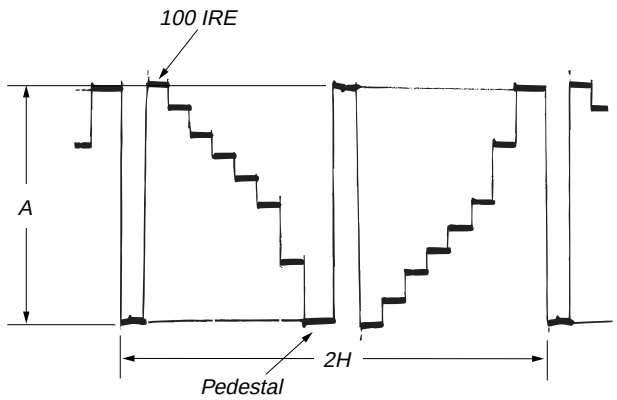


Fig. 5-1-17.

4. COM AMP Adjustment (PD-156 board)

Set the common electrode drive signal level of LCD to the specified value.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	48
Specified Value	A = 6.20 ± 0.05V

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	7	48		Change the data and set the PANEL COM signal level (A) to the specified value.
3	7	48		Press PAUSE button.
4	0	01	00	Set the data.

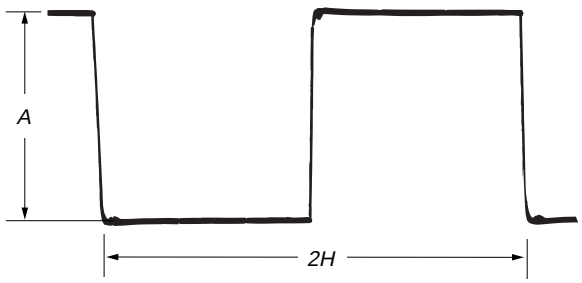


Fig. 5-1-18.

5. V-COM Adjustment (PD-156 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.
If deviated, the LCD display will move, producing flicker and conspicuous vertical lines.

Mode	VTR stop
Signal	No signal
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	7
Adjustment Address	45
Specified Value	The brightness difference between the section A and section B is minimum.

Note: This adjustment should be carried out upon completion of the following adjustments.
RGB AMP Adjustment
Contrast Adjustment
COM AMP Adjustment

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	7	45		Change the data so that the brightness of the section A and that of the section B is equal.
3	7	45		Subtract 8 from the data.
4	7	45		Press PAUSE button.
5	0	01	00	Set the data.

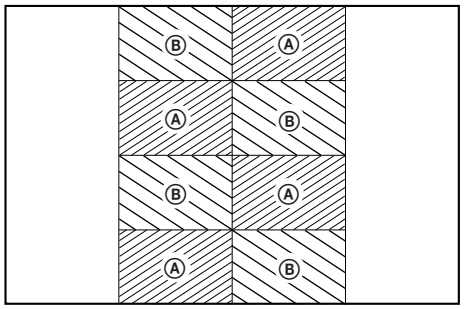


Fig. 5-1-19.

6. White Balance Adjustment (PD-156 board)

Correct the white balance.
If deviated, the reproduction of the LCD screen may degenerate.

Mode	VTR stop
Signal	No signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	7
Adjustment Address	49, 4A
Specified Value	The LCD screen should not be colored.

Note: Check the white balance only when replacing the following parts. If necessary, adjust them.
1. LCD panel
2. Light induction plate
3. IC5501

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	7	49	60	Set the data, and press PAUSE button.
3	7	4A	65	Set the data, and press PAUSE button.
4	7	49		Check that the LCD screen is not colored. If not colored, proceed to step 10.
5	7	49		Change the data so that the LCD screen is not colored.
6	7	49		Press PAUSE button.
7	7	4A		Change the data so that the LCD screen is not colored.
8	7	4A		Press PAUSE button.
9	7	4A		If the LCD screen is colored, repeat steps 5 to 9.
10	0	01	00	Set the data.

5-2. MECHANISM SECTION ADJUSTMENT

Mechanism Section adjustments, checks, and replacement of mechanism parts, refer to the separate volume "8mm Video Mechanism Adjustment Manual Ⅸ M2000 Mechanism".

2-1. ADJUSTMENT REMOTE COMMANDER

Connect the adjustment remote commander to CN713 of VC-272 board via the I/F unit for LANC control (J-6082-521-A) and CPC jig connector (J-6082-539-A). To operate the adjustment remote commander, connect the AC power adapter (8.4Vdc) to the DC IN jack of I/F unit for LANC control, or connect the L series Info-LITHIUM battery to the battery terminal of I/F unit for LANC control.

2-2. OPERATING WITHOUT CASSETTE

1) Refer to "Section 2. DISASSEMBLY" and supply the power with the cabinet assembly removed. (So that the mechanical deck can be operated.)
2) Connect the adjustment remote commander.
3) Turn on the HOLD switch of the adjustment remote commander.
4) Close the cassette compartment without loading a cassette and complete loading.
5) Select page: 0, address: 01, and set data: 01.
6) Select page: F, address: 20, set data: 01, and press the PAUSE button of the adjustment remote commander.
7) Select page: D, address: 10, set data: 10, and press the PAUSE button of the adjustment remote commander.
8) Disconnect the power supply of the unit.
   By carrying out the above procedure, the unit can be operated without loading a cassette.
   Be sure to carry out "Processing after Operations" after checking the operations.
   Set the data of page: D, address: 10 to the following if the sensor ineffective mode, forced VTR power supply On mode or forced camera power supply ON mode are to be used together.
   Forced VTR power ON mode 12
   Forced camera power ON mode 11

[Procedure after checking operations]

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 20, set data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.
5) Disconnect the power supply of the unit.

2-3. TAPE PATH ADJUSTMENT

1. Preparations for Adjustment

1) Clean the tape path face (tape guide, capstan shaft, pinch roller).
2) Connect the adjustment remote commander.
3) Turn on the HOLD switch of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 01.
5) Select page: F, address: 20, set data: 08, and press the PAUSE button of the adjustment remote commander.
   (Be sure to perform "Processing after operation" after completing adjustments.)
6) Connect the oscilloscope to I/F unit for LANC control.
   Channel 1: PB RF (Pin ⑨ of CN713)
   External trigger: SWP (Pin ⑤ of CN713)
7) Playback the alignment tape for tracking. (WR5-1CP)
8) Check that the oscilloscope RF waveform is normal at the entrance and exit.
   If not normal, adjust according to the separate volume "8mm Video Mechanical Adjustment Manual Ⅸ M2000 Mechanism".
9) Perform "Processing after operations", after completing adjustment.

Test point of CPC jig for SB

Pin No.	Signal Name	Pin No.	Signal Name
	BL	15	EVF VCO
14	EVF VG		BL 4.75
9	PB RF (MON)		
3	BPF MONI	6,8,10	GND
	TMS	7	REC RF (RF IN)
	TDI		TDO
5	SWP		TCK
4	CAP FG	2	IR VIDEO

Note: Pin No. are those of CN713.

Table 5-2-1.

[Procedure after operations]

1) Connect the adjustment remote commander, and turn on the HOLD switch.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: F, address: 20, set data: 00, and press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.
5) Remove the power supply from the unit.

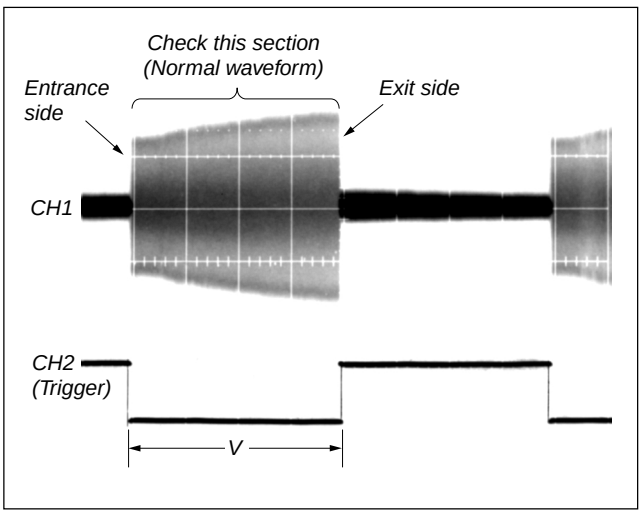


Fig. 5-2-1.

5-3. VIDEO SECTION ADJUSTMENTS

3-1. PREPARATIONS BEFORE ADJUSTMENTS

Use the following measuring instruments for video section adjustments.

3-1-1. Equipment to Required

1) TV monitor
2) Oscilloscope (dual-phenomenon, band width above 30 MHz with delay mode) (Unless specified otherwise, use a 10 : 1 probe.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Regulated power supply
11) PAL alignment tapes
    - For tracking adjustment (WR5-1CP)
      Parts code : 8-967-995-07
    - For video frequency characteristics adjustment (WR5-7CE)
      Parts code : 8-967-995-18
    - For checking Standard 8 mode operations
      For LP (WR5-4CL)
      Parts code : 8-967-995-56
      For SP (WR5-5CSP)
      Parts code : 8-967-995-47
      Note: The following alignment tapes can also be used.
      1) WR5-3CL (8-967-995-36)
      2) WR5-4CSP (8-967-995-46)
    - For checking Hi8 mode operations
      For LP (WR5-8CLE)
      Parts code : 8-967-995-57
      For SP (WR5-8CSE)
      Parts code : 8-967-995-48
    - For BPF adjustment (WR5-11CS)
      Parts code : 8-967-995-76
12) Adjustment remote commander (J-6082-053-B)
13) CPC jig connector (J-6082-539-A)
14) I/F unit for LANC control (J-6082-521-A)

3-1-2. Precautions on Adjusting

1) Connect the adjustment remote commander to CN713 of VC-272 board via the I/F unit for LANC control (J-6082-521-A) and CPC jig connector (J-6082-539-A). To operate the adjustment remote commander, connect the AC power adapter to the DC IN jack of I/F unit for LANC control, or connect the L series Info-LITHIUM battery to the battery terminal of I/F unit for LANC control.
2) The adjustments of this unit are performed in the VTR mode or camera mode.
   To set to the VTR mode, set the power switch to "PLAYER" or set the "Forced VTR Power ON mode" using the adjustment remote commander (Note1).
   To set to the Camera mode, set the power switch to "CAMERA" or set the "Forced Camera Power ON mode" using the adjustment remote commander (Note2).
   After completing adjustments, be sure to exit the "Forced VTR Power ON Mode" or "Forced Camera Power ON Mode". (Note3)
3) The front panel block (SI-033 board, microphone unit, video light) need not be connected. To remove, disconnect the following connector.
   SI-033 board CN752 (16P 0.5mm)
4) As removing the cabinet (R) assembly (removing CN709 of the VC-272 board) means removing the lithium 3V power supply (CF-2000 block BT001), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. If the cabinet (R) assembly has been removed, the self-diagnosis data, data on history of use (total drum rotation time etc.) will be lost. Before removing, note down the self-diagnosis data (data of page: 2, address: B0 to C6) and the data on history use (data of page: 2, address: A2 to AA and E0 to E2). (Refer to "5-4.Service Mode".)
5) The cabinet (R) assembly (CF-2000 block, LCD block) need not be connected to operate the VTR block. When removing the cabinet (R) assembly, disconnect the following connectors. (Note4)
   1. VC-272 board CN709 (22P, 0.5mm)
   2. VC-272 board CN701 (20P, 0.8mm)
6) The lens block (CD-354 board) need not be connected. To remove, disconnect the following connectors.
   1. VC-272 board CN271 (14P, 0.5mm)
   2. VC-272 board CN301 (24P, 0.5mm)
7) The EVF block (VF-150 board) need not be connected. To remove, disconnect the following connectors.
   VC-272 board CN705 (20P, 0.5mm)
8) By setting the "Forced VTR Power ON mode" or "Forced Camera Power ON mode", the video section can be operate even if the control switch block (SS-2000) has been removed. When removing the control switch block (SS-2000), disconnect the following connector.
   VC-272 board CN711 (5P 0.8mm)

Note1: Setting the "Forced VTR Power ON" mode (VTR mode)
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 02, and press the PAUSE button.

The above procedure will enable the VTR power to be turned on with the control switch block (SS-2000) removed.
After completing adjustments, be sure to exit the "Forced VTR Power ON mode".

Note2: Setting the "Forced Camera Power ON" mode (Camera mode)
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button.

The above procedure will enable the camera power to be turned on with the control switch block (SS-2000) removed.
After completing adjustments, be sure to exit the "Forced Camera Power ON mode".

Note3: Exiting the "Forced Power ON" mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button.
3) Select page: 0, address: 01, and set data: 00.

Note4: When the FK-2000 block or the CF-2000 block is removed, the VTR does an unusual movement for one minute after the power is turned on. So, operate the VTR by the adjustment remote commander (with the HOLD switch set in the OFF position) after it passes for more than one minute.

3-1-3. Adjusting Connectors

Some of the adjusting points of the video section are concentrated in CN713 of VC-272 board. Connect the Measuring instrument and the adjustment remote commander via the I/F unit for LANC control (J-6082-521-A) and CPC jig connector (J-6082-539-A) to CN713. To operate the adjustment remote commander, connect the AC power adapter to the DC IN jack of I/F unit for LANC control, or connect the L series Info-LITHIUM battery to the battery terminal of I/F unit for LANC control.

The following table shows the Pin No. and signal name of CN713.

Pin No.	Signal Name	Pin No.	Signal Name
1	N.C.	9	PB RF
2	IR VIDEO	10	REG GND
3	BPF MONI	11	LANC OUT
4	CAP FG	12	LANC IN
5	RF SWP	13	XLANC POWER ON
6	REG GND	14	EVF VG
7	REC RF	15	VCO
8	REG GND	16	N.C.

Table 5-3-1.

The following table shows the arrangement of the test points of I/F unit for LANC control. (Pin No. are those of CN713.)

Pin No.	Signal Name	Pin No.	Signal Name
	BL	15	EVF VCO
14	EVF VG		BL 4.75
9	PB RF (MON)		
3	BPF MONI	6,8,10	GND
	TMS	7	REC RF (RF IN)
	TDI		TDO
5	SWP		TCK
4	CAP FG	2	IR VIDEO

Table 5-3-2.

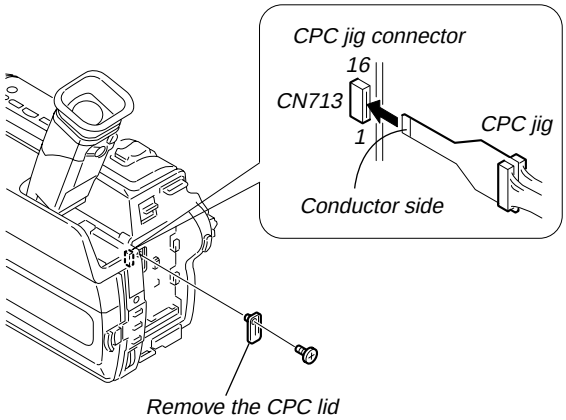
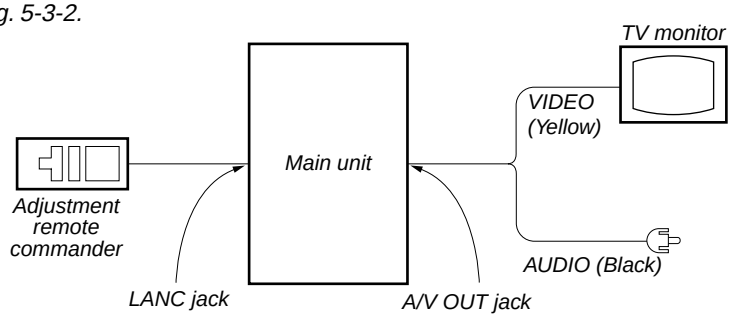


Fig. 5-3-1.

3-1-4. Connecting the Equipment

Connect the measuring instruments as shown in Fig. 5-3-2 and perform the adjustments.

Fig. 5-3-2.



3-1-5. Alignment Tape

The following table lists alignment tapes which are available.
Use the tape specified in the signal column for each adjustment. If the type of tape to be used for checking operations is not specified, use whichever type.

Alignment tape

Name	Recording mode	Tape type	Tape speed	Usage
Tracking (WR5-1CP)	Standard 8	MP	SP	Tape path adjustment, Switching position adjustment
Video frequency characteristics (WR5-7CE)	Hi8	ME	LP	Frequency characteristics adjustment
Operation check (WR5-5CSP)	Standard 8	MP	SP	Operation check
Operation check (WR5-8CSE)	Hi8	ME	SP	
Operation check (WR5-4CL)	Standard 8	MP	LP	
Operation check (WR5-8CLE)	Hi8	ME	LP	
BPF adjustment (WR5-11CS)	Standard 8	MP	SP	BPF adjustment

Tape type:
ME ..... Particle type metal tape
MP ..... Evaporated type metal tape

Table. 5-3-3.

Fig.5-3-3. shows the 75% color bar signals recorded on the alignment tape.
Note: Measure using the VIDEO terminal (Terminated at 75Ω).

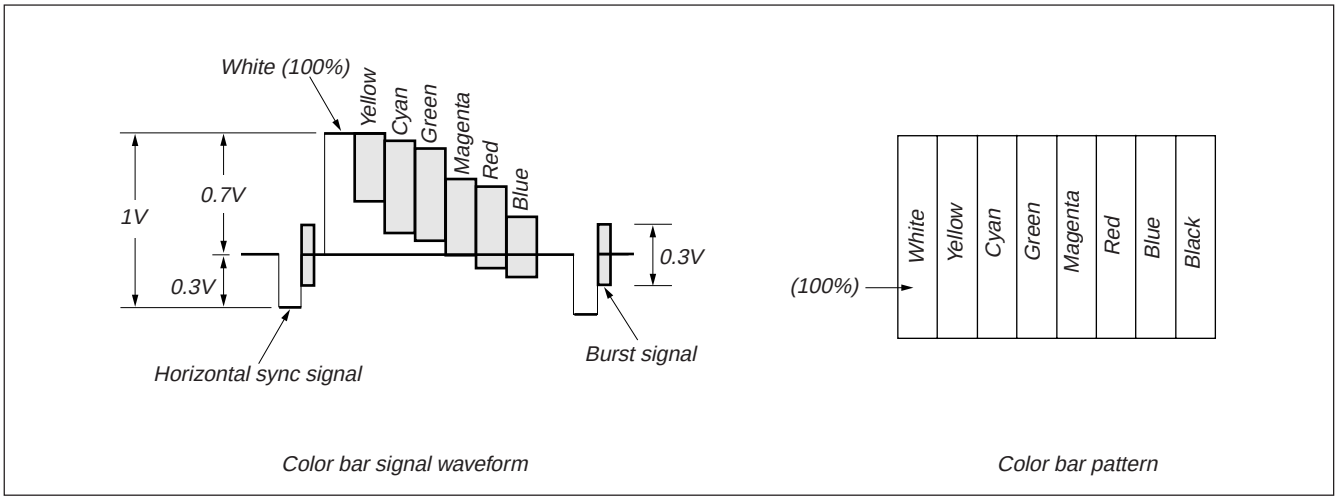


Fig. 5-3-3. Color bar signal of alignment tapes

3-1-6. Output Level and Impedance

Video output
Stereo minijack,
1Vp-p, 75Ω, unbalanced, sync negative
S video output
4-pin mini DIN
Luminance signal:
1Vp-p, 75Ω, unbalanced, sync negative
Chrominance signal:
0.300Vp-p, 75Ω, unbalanced
Audio output
Stereo minijack:
–7.5dBs, (at load impedance 47kΩ), impedance less than 2.2kΩ

3-1-7. Recording Mode (Standard 8/Hi8) switching

The record mode (Standard 8/Hi8) of this unit switches as shown in the following table. The playback mode (Standard 8/Hi8) switches automatically according to the recording mode of the tape played back.

Tape Used	Recording Mode
ME	Hi8
Hi8 MP	
MP	Standard 8

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENT

1. Initialization of D, E, F, 7 Page Data

If the D, E, F, 7 page data is erased due to some reason, perform "1-2. INITIALIZATION OF D, E, F, 7 PAGE DATA", of "5-1. CAMERA SECTION ADJUSTMENT"

3-3. SERVO ADJUSTMENT RadarW

1. CAP FG Offset Adjustment (VC-272 board)

Set the Cap FG signal duty cycle to 50% to establish an appropriate capstan servo. If deviated, the uneven rotation of capstan and noise can occur in the LP mode.

Mode	Camera recording (SP mode)
Subject	Arbitrary
Measurement Point	CAP FG (Pin ④ of CN713)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	59
Specified value	Duty = 50 ± 1 %

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	01	81	Set the data, and press PAUSE button.
3	6	02		Check that the data changes to "01".
4	6	01	00	Set the data, and press PAUSE button.
5				Check that Duty of CAP FG signal satisfies the specified value. If not, repeat steps 2 to 5.
6	0	01	00	Set the data.

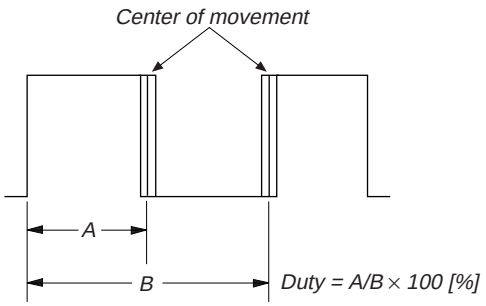


Fig. 5-3-4.

2. Switching Position Adjustment (VC-272 board)

If deviated in this case causes switching noise or jitter on the played back screen.

Mode	Playback
Signal	Alignment tape: For tracking adjustment (WR5-1CP)
Measurement Point	CH1: SWP (Pin ⑤ of CN713) CH2: PB RF (Pin ⑨ of CN713)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	5A, 5B
Specified Value	t1 = 0 ± 10 µsec

Adjusting Method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	F	20	40	Set the data, and press PAUSE button.
3	F	5A		Change the data and minimize "t1". (Coarse adjustment)
4	F	5A		Press PAUSE button
5	F	5B		Change the data and adjust so that the switching position (t1) becomes the specified value. (Fine adjustment)
6	F	5B		Press PAUSE button
7	F	20	00	Set the data, and press PAUSE button.
8	0	01	00	Set the data.

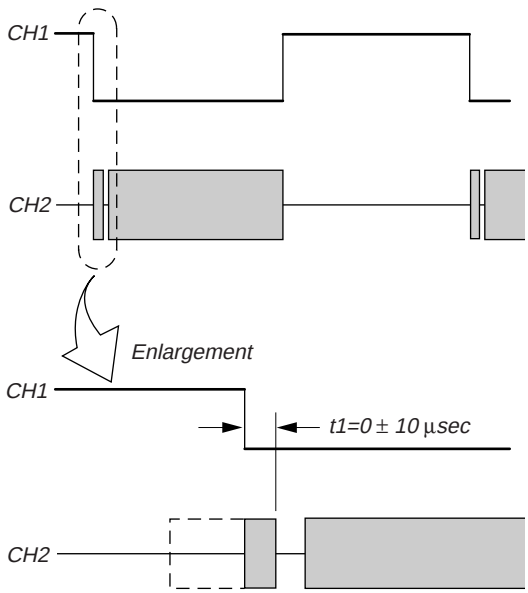


Fig. 5-3-5.

3-4. VIDEO SYSTEM ADJUSTMENTS

Video system adjustments must be performed in the following order.

[Adjusting Order]

1. 28MHz origin oscillation adjustment
2. AFC f_0 adjustment
3. Y OUT level adjustment
4. C OUT level adjustment
5. REC Y current adjustment
6. REC C/REC AFM current adjustment

1. 28 MHz Origin Oscillation Adjustment (VC-272 board)

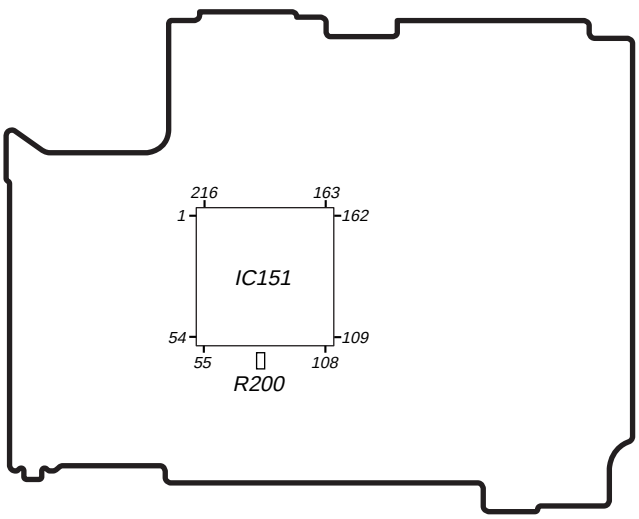
Set the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Mode	VTR stop
Signal	No signal
Measurement Point	R200 (Pin ⑦⑨ of IC151)
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	45
Specified Value	f = 4433594 ± 17Hz

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	61	30	Set the data.
3	2	01	41	Set the data, and press PAUSE button.
4	F	45		Change the data and set the frequency (f) to the specified value.
5	F	45		Press PAUSE button.
6	2	01	00	Set the data, and press PAUSE button.
7	6	61	10	Set the data.
8	0	01	00	Set the data.

VC-272 board



2. AFC f_0 Adjustment (VC-272 board) RadarW

Adjust the pull-in range of the A/D converted clock generator during playback.

Mode	VTR stop
Signal	No signal
Adjustment Page	F
Adjustment Address	5D

Note1: Insert a plug into the S VIDEO or the A/V jack.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	F	5D	50	Set the data, and press PAUSE button.
3	2	01	4D	Set the data, and press PAUSE button.
4				Wait for 0.5 sec.
5	6	01	C5	Set the data, and press PAUSE button.
6	6	02		Check that the data changes to "01". (Note2)
7	2	01	00	Set the data, and press PAUSE button.
8	6	01	00	Set the data, and press PAUSE button.
9	0	01	00	Set the data.

Note2: The adjustment data will be automatically input to page: F, address: 5D.

3. Y OUT Level Adjustment (VC-272 board)

Set the Y signal output level. (Adjust the D/A converter out put level of IC151.)

Mode	VTR stop
Signal	No signal
Measurement Point	Y signal terminal of S VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	5E
Specified Value	A = 300 ± 5mV

Note1: Insert a plug into the S video terminal.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	2	01	41	Set the data, and press PAUSE button.
3	6	61	30	Set the data,.
4	F	5E		Change the data and set the SYNC level (A) to the specified value.
5	F	5E		Press PAUSE button.
6	2	01	00	Set the data, and press PAUSE button.
7	6	61	10	Set the data.
8	0	01	00	Set the data.

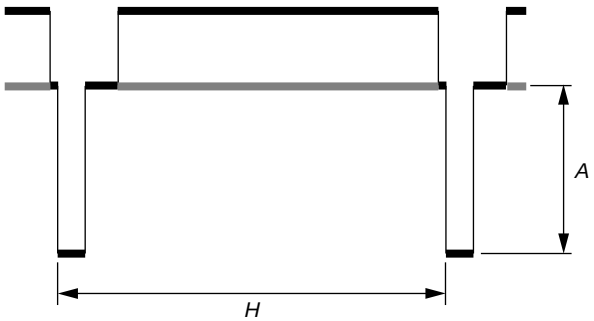


Fig. 5-3-6.

4. C OUT Level Adjustment (VC-272 board)

Set the chroma signal output level. (Adjust the D/A converter out put level of IC151.)

Mode	VTR stop
Signal	No signal
Measurement Point	Chroma signal terminal of S VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	5F
Specified Value	A = 300 ± 5mV

Note1: Insert a plug into the S video terminal.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	2	01	41	Set the data, and press PAUSE button.
3	6	61	30	Set the data,.
4	F	5F		Change the data and set the burst level (A) to the specified value.
5	F	5F		Press PAUSE button.
6	2	01	00	Set the data, and press PAUSE button.
7	6	61	10	Set the data.
8	0	01	00	Set the data.

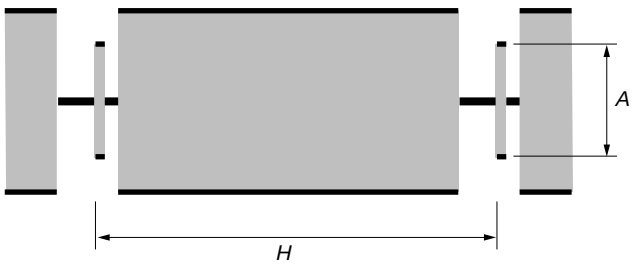


Fig. 5-3-7.

5. REC Y Current Adjustment (VC-272 board)

Adjust the Y FM signal recording current.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	REC RF (Pin ⑦ of CN713)
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: OFF)
Adjustment Page	F
Adjustment Address	62, 63
Specified Value	A = 280 ± 5mV

Note1: Insert a plug into the S VIDEO or the A/V jack.

Note2: Don't disconnect the DC power supply of the camcorder during the following adjustments.
When the following symptom occurs, reset the data of D page to the values written down.
1) The power is shut off so that unit cannot operate.

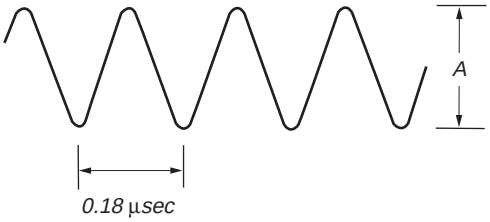


Fig. 5-3-8.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Set to the stop mode.
2	0	01	01	Set the data.
3	D	14		Write down the data.
4	D	14	26	Set the data, and press PAUSE button.
5	D	15		Write down the data.
6	D	15	6F	Set the data, and press PAUSE button.
7				Set to VTR recording mode. (Note3)
8	E	9F		Write down the data.
9	E	9F	06	Set the data, and press PAUSE button.
10	F	69		Write down the data.
11	F	69	00	Set the data, and press PAUSE button.
12	2	01	41	Set the data, and press PAUSE button.
13	6	63	01	Set the data.
14	F	63		Change the data and set the Y signal level (A) to the specified value.
15	F	63		Press PAUSE button.
16	F	63		Read the data, and this data is named D_{63}.
17	F	62	D_{63}	Set the data, and press PAUSE button.
18	6	63	00	Set the data.
19	2	01	00	Set the data, and press PAUSE button.
20	F	69		Set the data written down at step 10, and press PAUSE button.
21	E	9F		Set the data written down at step 8, and press PAUSE button.
22	D	14		Set the data written down at step 3, and press PAUSE button.
23	D	15		Set the data written down at step 5, and press PAUSE button.
24	0	01	00	Set the data.

Note3: Use the REC buttons of the adjustment remote commander (with the HOLD switch set in the OFF position).

6. REC C/AFM Current Adjustment

6-1. Preparations

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	D	14		Write down the data.
3	D	14	26	Set the data, and press PAUSE button.
4	D	15		Write down the data.
5	D	15	6F	Set the data, and press PAUSE button.

Note: Don't disconnect the DC power supply of the camcorder during the following adjustments.
When the following symptom occurs, reset the data of D page to the values written down.
1) The power is shut off so that unit cannot operate.

6-2. REC C Current Check (VC-272 board)

Check the recording current level of the REC Chroma signal. If it is too low, chroma signal noise in played back picture will be increased. If too high, Y signal noises will increase and white modulation noises will be produced.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	REC RF (Pin ⑦ of CN713)
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: OFF)
Specified Value	A = 54.0 ± 3.0mV

Note1: Insert a plug into the S VIDEO or the A/V jack.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Insert a tape, and set to VTR recording mode. (Note2)
2	0	01	01	Set the data.
3	2	01	41	Set the data, and press PAUSE button.
4	6	61	30	Set the data.
5	E	9F		Write down the data.
6	E	9F	05	Set the data, and press PAUSE button.
7	F	69		Write down the data.
8	F	69	00	Set the data, and press PAUSE button.
9				Check that the REC chroma signal level (A) satisfies the specified value, and write down the signal level.
10	F	69		Set the data written down at step 7, and press PAUSE button.
11	E	9F		Set the data written down at step 5, and press PAUSE button.
12	6	61	10	Set the data.
13	2	01	00	Set the data, and press PAUSE button.
14	0	01	00	Set the data.
15				Perform "REC AFM Current Adjustment" and "Processing after completed adjustment".

Note2: Use the REC buttons of the adjustment remote commander (with the HOLD switch set in the OFF position).

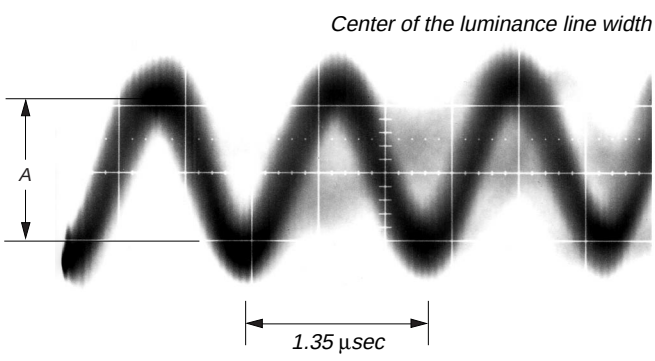


Fig. 5-3-9.

6-3. REC AFM Current Adjustment (VC-272 board)

Set the recording levels of the REC AFM signal. If the level is too low, the audio S/N will be deteriorated. If too high, color beets will be produced on the self-recording / playback image.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	REC RF (Pin ⑦ of CN713)
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: OFF)
Adjustment Page	F
Adjustment Address	69
Specified Value	A = (REC Chroma signal level) × 0.309 ± 0.9mV (Note1)

Note1: REC chroma signal level is written down at step 9 of "REC C Current Check".
Note2: Insert a plug into the S VIDEO or the A/V jack.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Insert a tape, and set to recording mode. (Note3)
2	0	01	01	Set the data.
3	2	01	41	Set the data, and press PAUSE button.
4	E	9F		Write down the data.
5	E	9F	07	Set the data, and press PAUSE button.
6	F	69		Change the data and set the REC AFM signal level (A) to the specified value.
7	F	69		Press PAUSE button.
8	E	9F		Set the data written down at step 4, and press PAUSE button.
9	2	01	00	Set the data, and press PAUSE button.
10	0	01	00	Set the data.
11				Perform "Processing after completed adjustment".

Note3: Use the REC buttons of the adjustment remote commander (with the HOLD switch set in the OFF position).

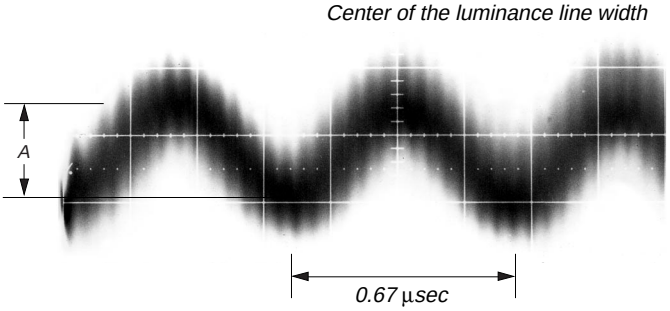


Fig. 5-3-10.

6-4. Processing after completed adjustment

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	D	14		Set the data written down at step 2 of "6-1. Preparations", and press PAUSE button.
3	D	15		Set the data written down at step 4 of "6-1. Preparations", and press PAUSE button.
4	0	01	00	Set the data.

3-5. AUDIO SYSTEM ADJUSTMENTS

[Connecting the measuring instruments for the audio]
Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 5-3-11.

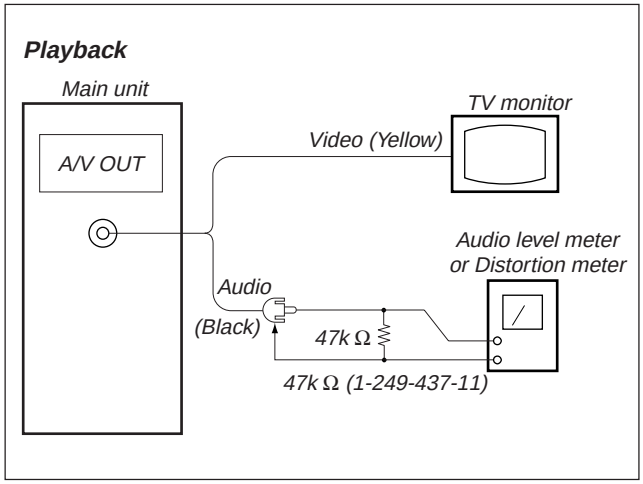


Fig. 5-3-11.

1. 1.5 MHz Deviation Adjustment (VC-272 board)

Adjust to the optimum 1.5MHz audio FM signal deviation.
If the adjustment is not correct, its playback level will differ from that of other units.

Mode	Playback
Signal	Alignment tape: For checking operation (WR5-5CSP)
Measurement Point	Audio terminal of A/V OUT jack
Measuring Instrument	Audio level meter
Adjustment Page	F
Adjustment Address	73
Specified Value	–7.5 ± 2.0dBs

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	F	73		Change the data and set the 400Hz audio signal level to the specified value.
3	F	73		Press PAUSE button.
4	0	01	00	Set the data.

2. BPF f_0 Adjustment (VC-272 board)

Sets the BPF passing frequency of IC351 so that the AFM signal can separate from the playback RF signal properly. If deviated. the mono/stereo mode will be differentiated incorrectly, and noises and distortions will increase during high volume playback.

Mode	Playback
Signal	Alignment tape: For BPF adjustment (WR5-11CS)
Measurement Point	Audio terminal of A/V OUT jack
Measuring Instrument	Distortion meter
Adjustment Page	F
Adjustment Address	74
Specified Value	The distortion rate should be minimum.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	F	74		Change the data and minimize the distortion rate.
3	F	74		Press PAUSE button.
4	0	01	00	Set the data.

5-4. SERVICE MODE

4-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the Adjustment Remote Commander

1) Connect the adjustment remote commander to CN713 of VC-272 board via the I/F unit for LANC control (J-6082-521-A) and CPC jig connector (J-6082-539-A). To operate the adjustment remote commander, connect the AC power adapter (8.4Vdc) to the DC IN jack of I/F unit for LANC control, or connect the L series Info-LITHIUM battery to the battery terminal of I/F unit for LANC control.
2) Set the HOLD switch of the adjustment remote commander to "HOLD" (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 5-4-1.

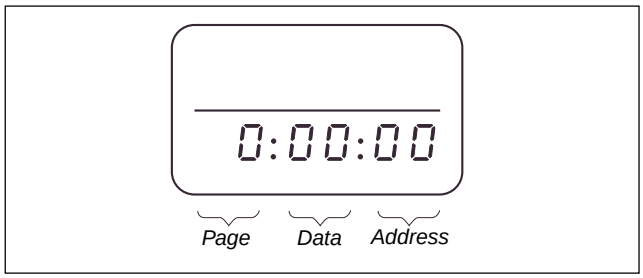


Fig. 5-4-1.

3) Operate the adjustment remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

   - Changing the address
     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (►) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (D, E, F, 7 page) in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed.)
4) After completing all adjustments, turn off the main power supply (8.4 V) once.

2. Precautions Upon Using the Adjustment Remote Commander

Mishandling of the adjustment remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

4-2. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Indicates the hexadecimal-decimal conversion table.

Hexadecimal-decimal Conversion Table

	Lower digit of hexadecimal / Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d) ②	E (E)	F (F)
	0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
	3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
	4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
	5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
	6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
	7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
	8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
	9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
	A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①	B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
	C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
	D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
	E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
	F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: The characters shown in the parenthesis ( ) shown the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (bd);
Because the upper digit of the adjustment number is B (b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the corresponding decimal number.

Table. 5-4-1.

4-3. SERVICE MODE

Note: After the completion of the all adjustments, cancel the service mode by either of the following ways.

1) Unplug the main power supply and remove the lithium battery. (In this case, date and time and menu setting have been set by users are canceled. Perform resetting.)
2) After data on page: D and F is restored, return data of the address: 01 on page: 0 to 00. And when data on page: 2 is changed, return the data to the original condition.

1. Test Mode Setting

Set/release each test mode. Set page: 0, address: 01, data: 01 before setting the data of page D and F.

Page F	Address 20

Data	Function
00	Normal
01	Test mode Various emergency prohibitions and releases Drum emergency, capstan emergency, loading motor emergency, reel emergency, tape top and end, DEW detection

Page D	Address 10

Data	Function
00	Normal
01	Camera power ON
02	VTR power ON
03	Camera + VTR power ON

* For page D and F, the data set will be recorded in the nonvolatile memory by pressing the PAUSE button on the adjustment remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off.

* Be sure to return the data of page: F, address: 20 to 00, and the data of page : D, address: 10 to 00 after completing adjustments/ repairs and press the PAUSE button of the adjustment remote commander. And set page: 0, address: 01, data: 00.

2. Emergency Memory Address

Page F	Address 10 to 1B

Address	Contents
10	1st EMG code
12	Upper: MSW code when the mechanism starts shifting the 1st time Lower: MSW code when the 1st emergency occurs
13	Lower: Target MSW code of the 1st emergency occurs
14	2nd EMG code
16	Upper: MSW code when the mechanism starts shifting the 2nd time Lower: MSW code when the 2nd emergency occurs
17	Lower: Target MSW code of the 2nd emergency occurs
18	Last EMG code
1A	Upper: MSW code when the mechanism starts shifting the last time Lower: MSW code when the last emergency occurs
1B	Lower: Target MSW code of the last emergency occurs

When there are no emergency, data 00 will be written in the above addresses (10 to 1B). When the first emergency occurs, the data corresponding to the emergency will be written in the address (10 to 13) for this first emergency. In the same way, when the second emergency occurs, the data corresponding to the emergency will be written in the address (14 to 17) for this second emergency.
The data corresponding to the emergency occurring the last will be written in the address (18 to 1B) for this last emergency.
Therefore the data of addresses 18 to 1B are renewed each time an emergency occurs.

Note: After completing adjustments, be sure to initialize the data of address 10 to 1B to "00".

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	00	9F	Set the data.
3	6	01	9F	Set the data, and press PAUSE button.
4	0	01	00	Set the data.

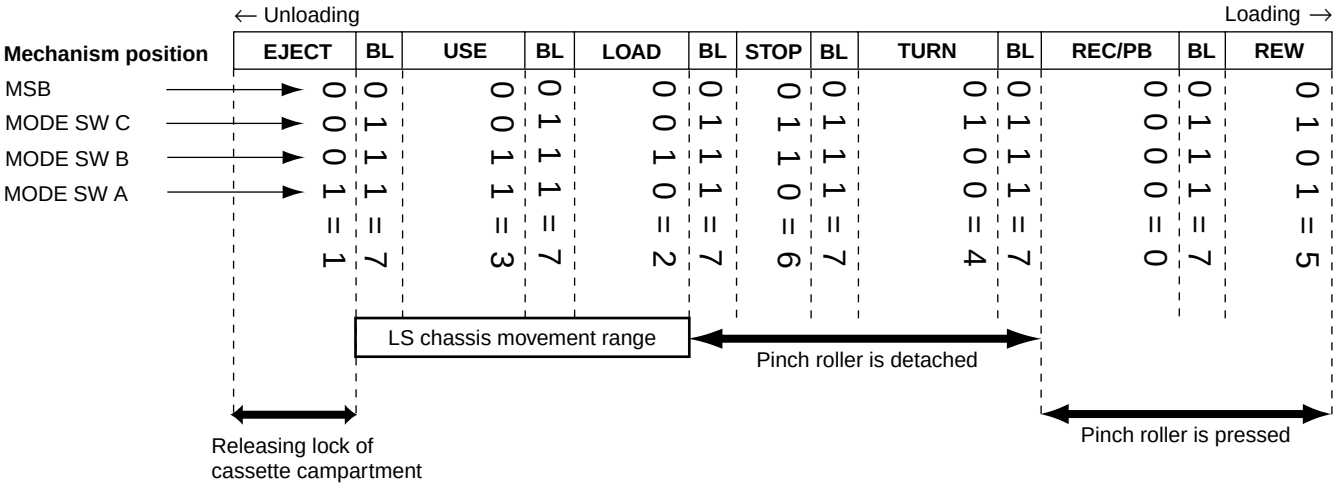
2-1. EMG code (Emergency code)

The codes shown in the following table which correspond to errors that occur are recorded in addresses 10, 14, and 18.

Code	Type of Emergency
00	No error
10	Loading motor time-out during load
11	Loading motor time-out during unload
20	T reel emergency (reel slack) during unloading
21	S reel emergency (reel slack) during unloading
22	T reel emergency
23	S reel emergency
30	FG emergency at the start up of the capstan
31	FG emergency during the normal rotation of the capstan
40	FG emergency at the start up of the drum
41	PG emergency at the start up of the drum
42	FG emergency during the normal rotation of the drum
43	PG emergency during the normal rotation of the drum
44	Phase emergency during the normal rotation of the drum

2-2. MSW codes

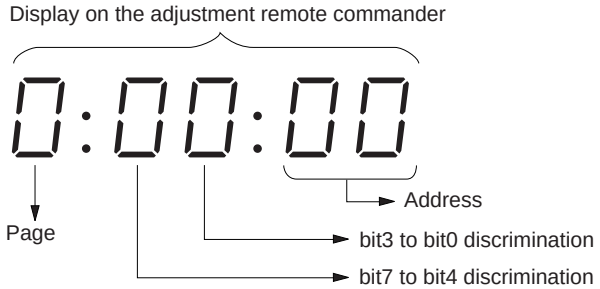
- The lower parts of the data of addresses 12, 16 and 1A represent the MSW codes (mode switch, mechanism position) when errors occurs.
- The upper parts of the data of addresses 12, 16 and 1A represent, when the mechanism position is to be moved, the MSW codes at the start of movement (when moving the loading motor).
- The lower parts of the data of addresses 13, 17 and 1B represent the MSW codes of the desired movement when the mechanism position is to be moved.



Mechanism Position	MSW Code	Contents
EJECT	1	Position at which the cassette compartment lock is released. The mechanism will not move any further in the unloading direction.
BL	7	BLANC code. Between two codes. The mechanism will not be stopped by this code while it is operating.
USE	3	EJECT completion position. When the cassette is ejected, the mechanism will stop at this position.
LOAD	2	Code during loading/unloading. Code that is used while the LS chassis is moving.
STOP	6	Normal stop position. The pinch roller separates, the tension regulator returns, and the brakes of both reels turn on.
TURN	4	Position at which is used when the pendulum gear swings from S to T or from T to S.
REC/PB	0	PB, REC, CUE, REV, PAUSE, FF positions. The pinch roller is pressed and tension regulator is on.
REW	5	REW position. REW are carried at this position. The mechanism will not move any further in the loading direction.

3. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Us the table below to discriminate if the bit value is “1” or “0”.



(Example) If the remote commander display is “8E”, bit value from bit 7 to bit 4 can be discriminated from the column Ⓐ, and those from bit 3 to bit 0 from column Ⓑ.

	Display on the adjustment remote commander	Bit values			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A (R)	1	0	1	0
	B (b)	1	0	1	1
	C (C)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ	E (E)	1	1	1	0
	F (F)	1	1	1	1

4. Switch check (1)

Page 2	Address 43

Bit	Function	When bit value = 1	When bit value = 0
0	POWER SW (VTR MODE SW) (SS-2000 block S001)	OFF	ON (PLAYER)
1	POWER SW (CAM MODE SW) (SS-2000 block S001)	OFF	ON (CAMERA)
2	START/STOP SW (SS-2000 block S002)	OFF	ON
3	EJECT SW (FK-2000 block S001)	OFF	ON
4	CC DOWN SW (Mechanism chassis)	OFF (UP)	ON (DOWN)
5			
6			
7			

Using method:

1) Select page: 2, address: 43.
2) By discriminating the bit value of display data, the state of the switch can be discriminated.

5. Switch check (2)

Page 2	Address 49

Bit	Function	When bit value = 1	When bit value = 0
6	A/V OUT jack (FP-397 flexible)	Used	Not used
7	S VIDEO jack (FP-397 flexible)	Not used	Used

Using method:

1) Select page: 2, address: 49.
2) By discriminating the bit value of display data, the state of the switch can be discriminated.

6. Switch check (3)

Page 2	Address 60 to 65

Using method:

1) Select page: 2, address: 60 to 65.
2) By discriminating the display data, the pressed key can be discriminated.

Address	Data							
	00 to 0C	0D to 24	25 to 3F	40 to 5D	5E to 81	82 to AA	AB to D7	D8 to FF
60 (KEY AD0) (IC503 ⑨③)		LIGHT (FK-2000) (S002)	STOP (FK-2000) (S005)	FF (FK-2000) (S007)				No key input
61 (KEY AD1) (IC503 ⑨④)			PAUSE (FK-2000) (S006)	REW (FK-2000) (S008)	PLAY (FK-2000) (S009)			No key input
62 (KEY AD2) (IC503 ⑨⑤)		TITLE (CF-2000) (S006)	EXPOSURE (CF-2000) (S009)	VOL+ (CF-2000) (S0012)	VOL– (CF-2000) (S0015)	DATE (CF-2000) (S022)	PANEL CLOSE (CF-2000) (S001)	PANEL OPEN (CF-2000) (S001)
63 (KEY AD3) (IC503 ⑨⑥)		DISPLAY (CF-2000) (S005)	TIME (CF-2000) (S023)		E DUBBING (CF-2000) (S013)	COUNTER RESET (CF-2000) (S017)	EXEC (CF-2000) (S019)	No key input
64 (KEY AD4) (IC503 ⑨⑦)	MENU (CF-2000) (S002)	FADER (CF-2000) (S004)		END SEARCH (CF-2000) (S010)		BACK LIGHT (CF-2000) (S016)	FOCUS (CF-2000) (S018)	No key input
65 (KEY AD5) (IC503 ⑨⑧)	PANEL REVERSE (PR-1000)							PANEL NORMAL (PR-1000)

7. Record of Use check

Note: When replacing the drum assembly, initialize the data of address: A2 to A4.
When replacing the video light, initialize the data of address: E0 to E2.

Page 2	Address A2 to AA and E0 to E2

Bit	Function		Remarks
A2	Drum rotation	Hour (H)	1000th place digit and 100th place digit of counted time (decimal digit)
A3	counted time	Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
A4	(BCD code)	Minute	
A5	User initial power	Year	After setting the clock, set the date of power on next
A6	on date	Month	
A7	(BCD code)	Day	
A8	Final condensation	Year	
A9	occurrence date	Month	
AA	(BCD code)	Day	
E0	Video light	Hour (H)	1000th place digit and 100th place digit of counted time (decimal digit)
E1	counted time	Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
E2	(BCD code)	Minute	

Using method:

1) The record of use data is displayed at page: 2, addresses: A2 to AA and E0 to E2.
Note: This data will be erased (reset) when the cabinet (R) assembly (VC-272 board CN709 (24P)) is removed.

Initializing method:

1) Using the adjustment remote commander, select the object address and set data: 00.

8. Record of Self-diagnosis check

Page 2	Address B0 to C6

Address	Self-diagnosis code
B0	“Repaired by” code (Occurred 1st time) *1
B1	“Block function” code (Occurred 1st time)
B2	“Detailed” code (Occurred 1st time)
B4	“Repaired by” code (Occurred 2nd time) *1
B5	“Block function” code (Occurred 2nd time)
B6	“Detailed” code (Occurred 2nd time)
B8	“Repaired by” code (Occurred 3rd time) *1
B9	“Block function” code (Occurred 3rd time)
BA	“Detailed” code (Occurred 3rd time)
BC	“Repaired by” code (Occurred 4th time) *1
BD	“Block function” code (Occurred 4th time)
BE	“Detailed” code (Occurred 4th time)
C0	“Repaired by” code (Occurred 5th time) *1
C1	“Block function” code (Occurred 5th time)
C2	“Detailed” code (Occurred 5th time)
C4	“Repaired by” code (Occurred the last time) *1
C5	“Block function” code (Occurred the last time)
C6	“Detailed” code (Occurred the last time)

*1 : “01”→“C”, “03”→“E”

Using method:

1) The past self-diagnosis codes are displayed at page: 2, addresses: BC to C6. Refer to “SELF-DIAGNOSIS FUNCTION” for detail of the self-diagnosis code.
   Note: This data will be erased (reset) when the cabinet (R) assembly (VC-272 board CN709 (24P)) is removed.

SECTION 6
REPAIR PARTS LIST

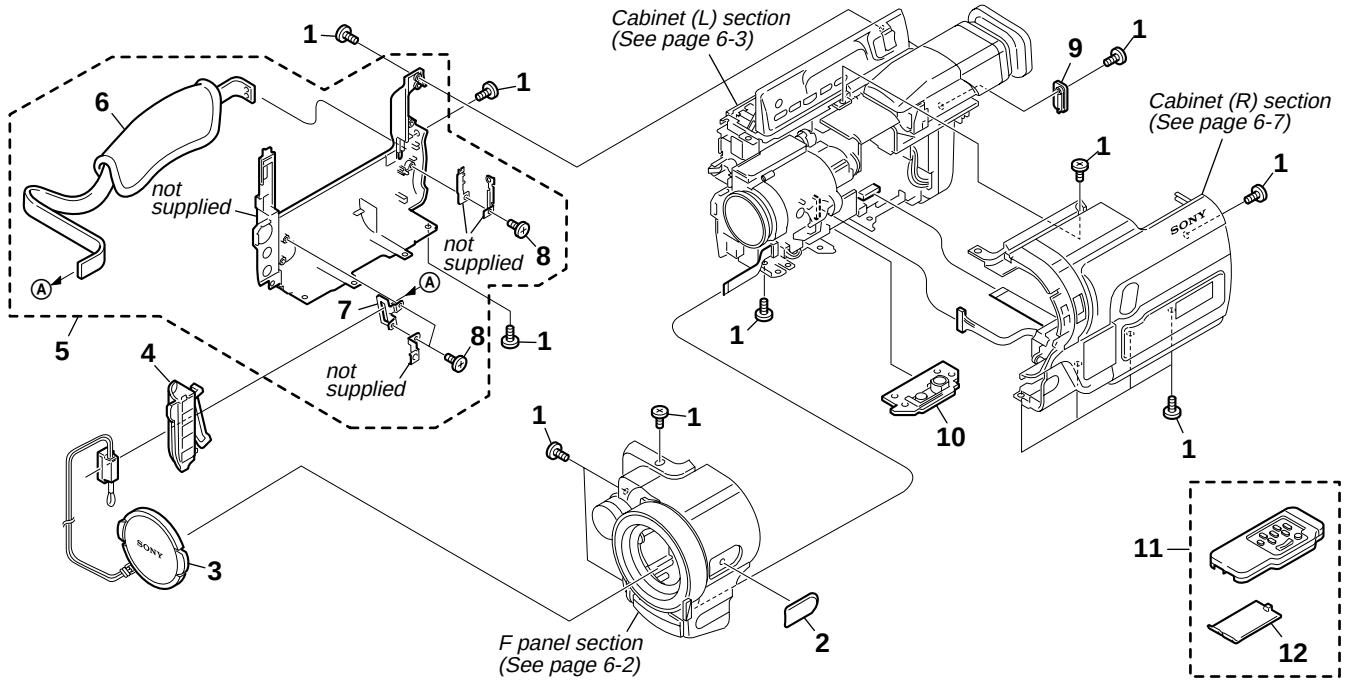
6-1. EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Abbreviation
  AUS : Australian model
  HK : Hong Kong model
  CH : Chinese model
  JE : Tourist model
  EE : East European model
  NE : North European model
  RU : Russian model

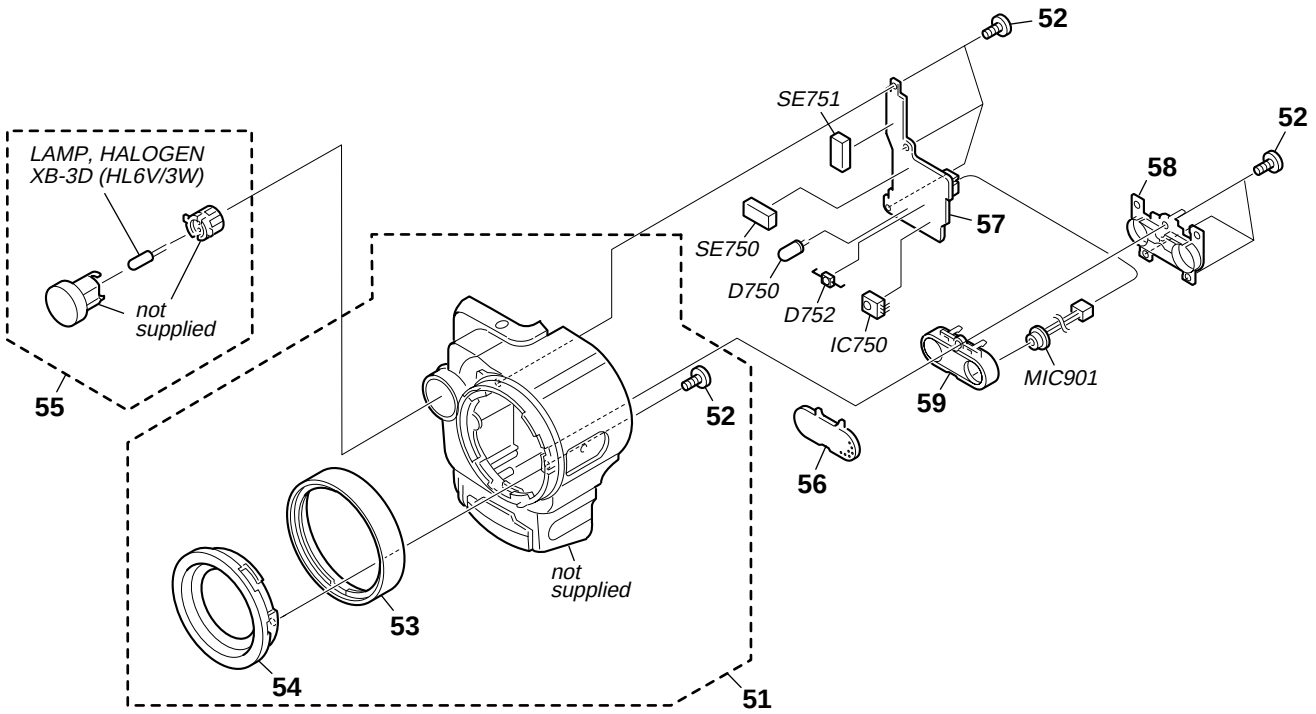
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

6-1-1. OVERALL SECTION



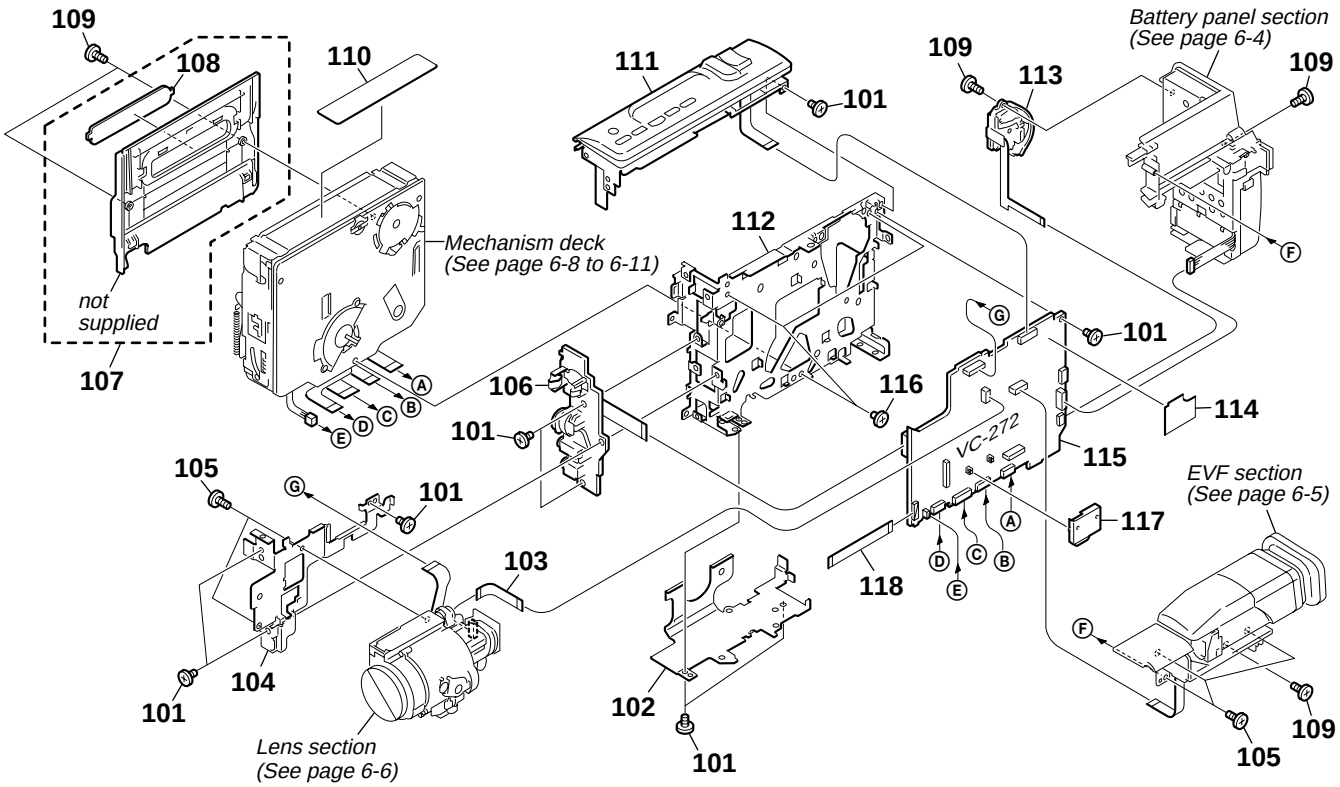
Ref. No.	Part No.	Description	Remarks
1	3-067-347-01	MI SCREW M2 (H)	
2	3-072-155-01	PLATE (20), MAGNIFICATION	(TRV208E/TRV408E)
2	3-072-155-11	PLATE (20), MAGNIFICATION (TRV108E)	
2	3-072-155-21	PLATE (20), MAGNIFICATION (TRV107E)	
3	X-3949-376-1	CAP (N) ASSY, LENS	
4	3-072-149-01	COVER (20), JACK	
5	X-3952-094-1	CABINET (L) (20) ASSY	
6	3-052-815-01	BELT (ES), GRIP	
7	3-072-151-01	STOPPER (FRONT) (20), BELT	
8	3-948-339-61	TAPPING	
9	3-072-148-01	LID (20), CPC	
10	3-987-717-01	SCREW	
11	1-467-574-21	REMOTE COMMANDER (RMT-708)	(TRV107E/TRV208E/TRV408E)
12	3-958-131-01	LID, BATTERY CASE (FOR RMT-708)	(TRV107E/TRV208E/TRV408E)

6-1-2. F PANEL SECTION



Ref. No.	Part No.	Description	Remarks
51	X-3952-081-1	PANEL (20) ASSY, F (TRV107E/TRV208E/TRV408E)	
51	X-3952-085-1	PANEL (20) ASSY, F (TRV108E)	
52	3-948-339-61	TAPPING	
53	3-065-461-01	RING (10), ORNAMENTAL	
54	3-072-175-01	SCREW (20), FILTER	
55	1-518-787-21	LIGHT, VIDEO	
56	3-072-181-01	CUSHION (20), MICROPHONE	
57	A-7078-027-A	SI-033 BOARD, COMPLETE	
58	3-072-180-01	RETAINER (REAR)(20),MICROPHONE	
59	3-072-179-01	RETAINER(FRONT)(20),MICROPHONE	
D750	8-719-060-65	DIODE DAC3825	
D752	8-719-078-33	DIODE BR2222S-71-B2	
IC750	6-701-681-01	IC RPM7140-V4 (TRV107E/TRV208E/TRV408E)	
MIC901	1-542-312-11	MICROPHONE	
SE750	1-803-042-31	SENSOR, ANGULAR VELOCITY (PITCH) (TRV408E)	
SE751	1-803-042-41	SENSOR, ANGULAR VELOCITY (YAW) (TRV408E)	

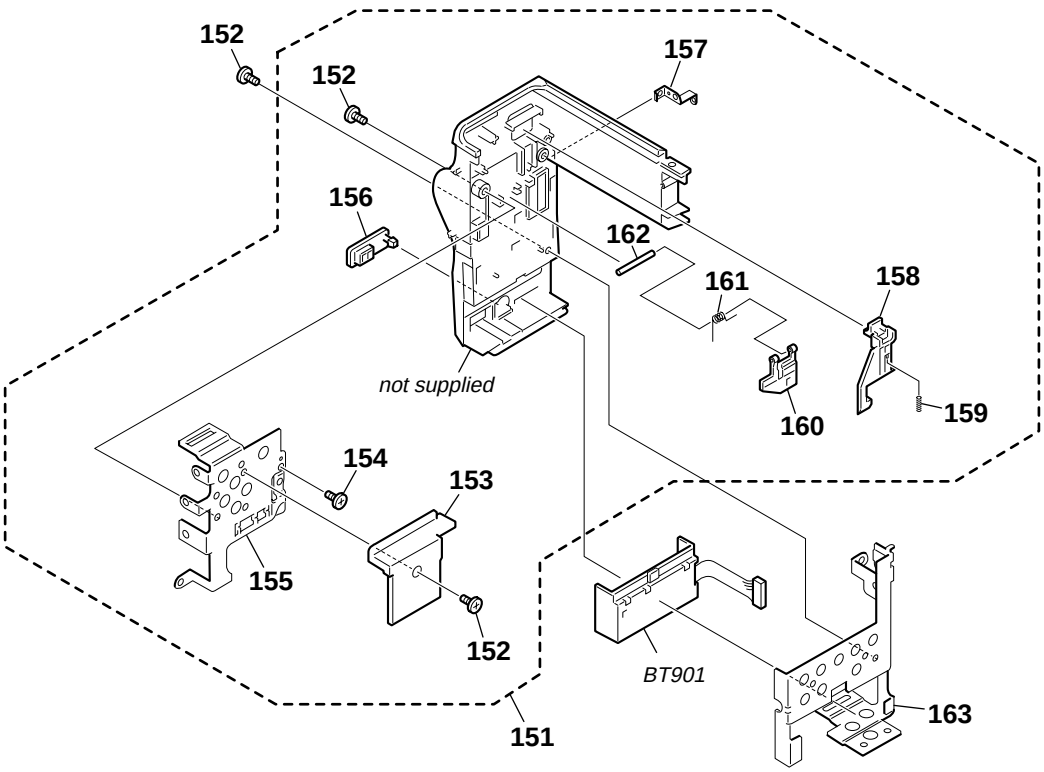
6-1-3. CABINET (L) SECTION



Ref. No.	Part No.	Description	Remarks
101	3-968-729-51	SCREW (M2), LOCK ACE, P2	
102	3-072-145-01	FRAME (B) (20), MD	
103	1-683-163-11	FP-400 FLEXIBLE BOARD	
104	3-072-146-01	FRAME (20), LENS	
105	3-948-339-61	TAPPING	
106	1-683-160-21	FP-397 FLEXIBLE BOARD	
107	X-3952-109-1	LID (20) ASSY, CASSETTE	
108	3-072-209-01	WINDOW (20), CASSETTE	
109	3-067-347-01	MI SCREW M2 (H)	
110	3-066-169-01	SHEET, MD	

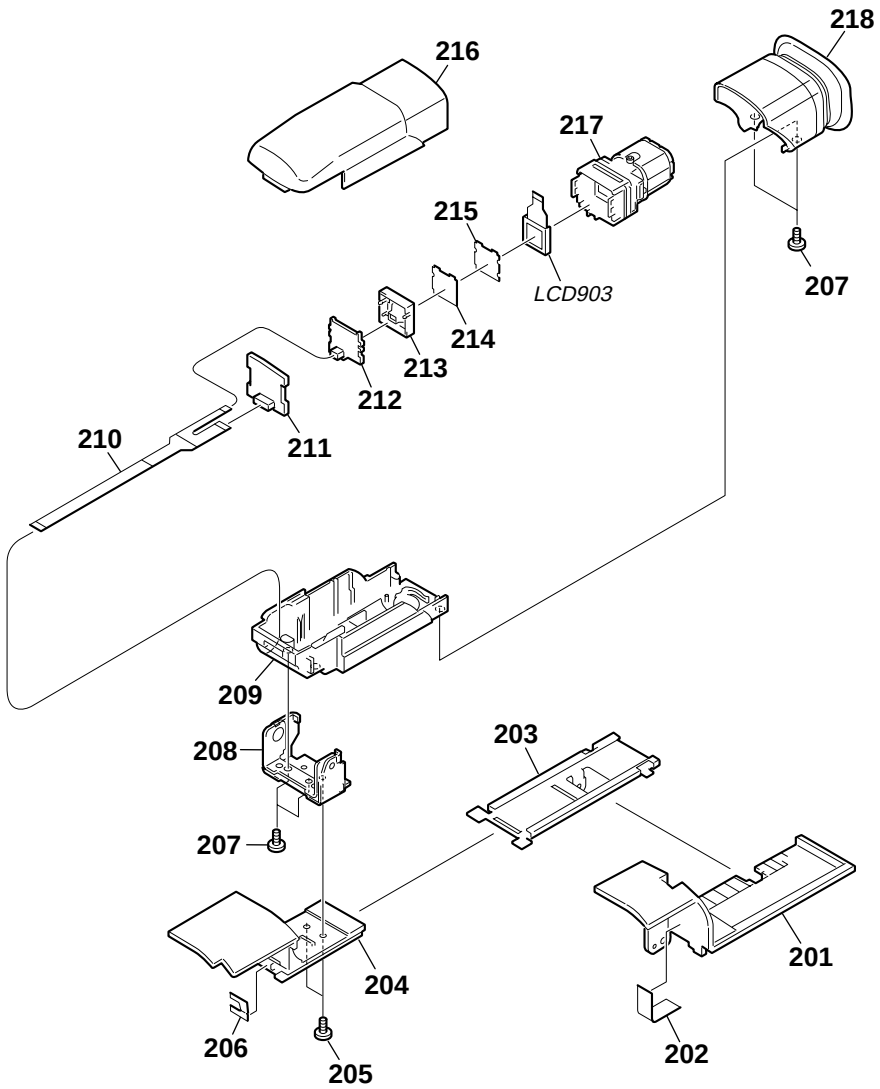
Ref. No.	Part No.	Description	Remarks
111	1-476-976-11	SWITCH BLOCK, CONTROL(FK-2000)	
112	3-072-144-01	FRAME (A) (20), MD	
113	1-476-978-11	SWITCH BLOCK, CONTROL(SS-2000)	
* 114	3-065-654-01	SHIELD (10), DD	
115	A-7028-969-A	VC-272 (P-V) BOARD, COMPLETE (SERVICE)	(TRV107E/TRV108E/TRV208E)
115	A-7028-971-A	VC-272 (P-VM) BOARD, COMPLETE (SERVICE)	(TRV408E)
116	4-974-725-01	SCREW (M1.7X2.5), P	
117	3-072-147-01	CASE (20), SHIELD, RP	
118	1-683-595-11	FP-418 FLEXIBLE BOARD	

6-1-4. BATTERY PANEL SECTION



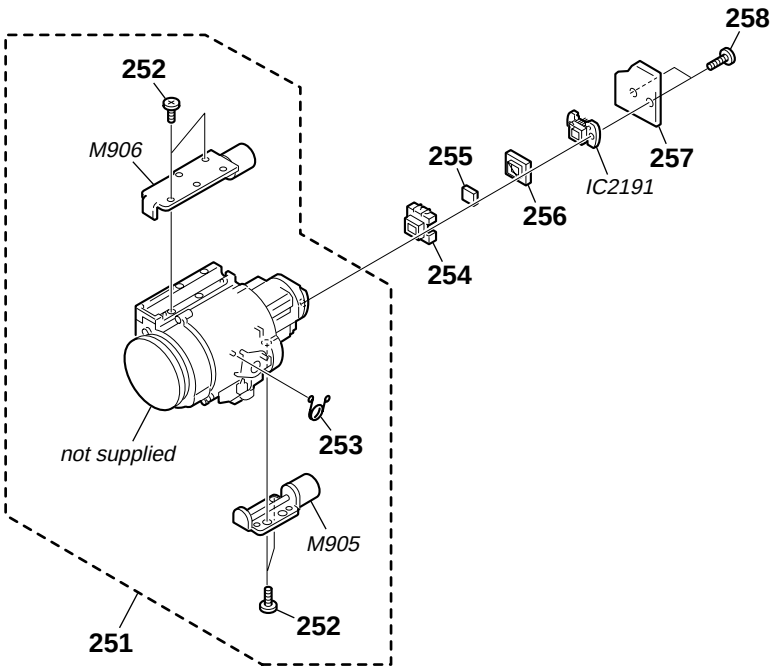
Ref. No.	Part No.	Description	Remarks
151	X-3952-099-1	PANEL (20) ASSY, BATTERY	
152	3-067-347-01	MI SCREW M2 (H)	
153	3-072-200-01	BLIND (20), BATTERY	
154	3-948-339-61	TAPPING	
155	3-072-201-01	SHEET METAL (20)(UPPER), STRAP	
156	3-072-205-01	LID (20), JACK	
157	3-072-202-01	PLATE (20), GROUND, VF	
158	3-072-203-01	KNOB (20), BATTERY RELEASE	
159	3-968-771-01	SPRING, COMPRESSION	
160	3-072-204-01	LOCK (20), BATTERY	
161	3-968-768-01	SPRING, LOCK	
162	3-968-770-01	SHAFT, BT	
163	3-072-207-01	SHEET METAL (20)(LOWER), STRAP	
BT901	1-694-772-11	TERMINAL BOARD, BATTERY	

6-1-5. EVF SECTION



Ref. No.	Part No.	Description	Remarks
201	3-072-196-01	BASE (20), VF	
202	3-941-343-21	TAPE (A)	
203	3-072-185-01	PLATE (20), FIXED, SLIDE	
204	X-3952-111-1	BASE (20) ASSY, SLIDE	
205	3-067-347-01	MI SCREW M2 (H)	
* 206	3-058-640-01	RETAINER (100), HARNESS	
207	3-948-339-81	TAPPING	
208	X-3952-112-1	HINGE (20) ASSY, VF	
209	X-3952-104-1	CABINET (LOWER) (20) ASSY, EVF	
210	1-683-164-11	FP-401 FLEXIBLE BOARD	
211	A-7078-025-A	VF-150 (BW) BOARD, COMPLETE	
212	A-7078-026-A	LB-073 (BW) BOARD, COMPLETE	
213	3-072-214-01	GUIDE (20), LAMP	
214	3-072-211-01	ILLUMINATOR	
215	3-072-210-01	SHEET, PRISM	
216	3-072-194-01	CABINET (UPPER) (20), EVF	
217	X-3951-168-1	LENS (B) ASSY, VF	
218	X-3952-107-1	CABINET (REAR) (20) ASSY, EVF	
LCD903	8-753-028-49	LCX032AP-J	

6-1-6. LENS SECTION

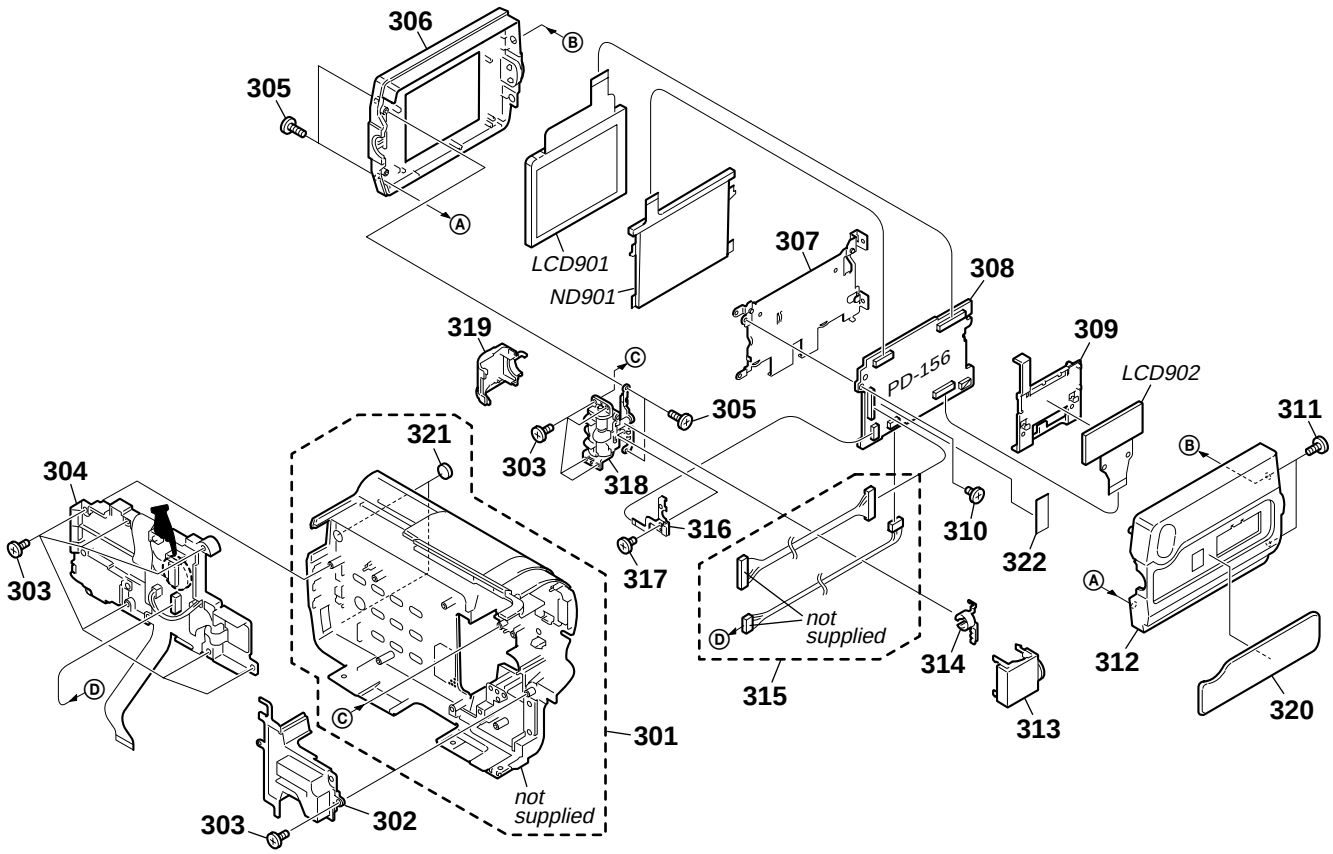


Be sure to read “Precautions upon replacing CCD imager” on page 4-8 when changing the CCD imager.

Ref. No.	Part No.	Description	Remarks
251	8-848-755-01	DEVICE, LENS LSV-631B	
252	3-713-791-41	SCREW (M1.7X5), TAPPING, P2	
253	3-053-800-01	SPRING, RETURN	
254	3-978-981-11	ADAPTOR (FK), CCD FITTING	
255	1-758-084-21	FILTER BLOCK, OPTICAL	(TRV107E/TRV108E/TRV208E)
255	1-758-133-21	FILTER BLOCK, OPTICAL (TRV408E)	
256	3-953-817-01	RUBBER (F), SEAL (TRV408E)	

Ref. No.	Part No.	Description	Remarks
256	3-968-054-11	RUBBER (FM), SHIELD	(TRV107E/TRV108E/TRV208E)
257	A-7078-035-A	CD-354 BOARD, COMPLETE	
258	3-318-203-11	SCREW (B1.7X6), TAPPING	
IC2191	A-7012-087-A	CCD BLOCK ASSY (CCD IMAGER)	(TRV107E/TRV108E/TRV208E)
IC2191	A-7031-049-A	CCD BLOCK ASSY (CCD IMAGER) (TRV408E)	
M905	1-763-796-11	MOTOR, STEPPING F631B (FOCUS)	
M906	1-763-046-21	MOTOR, STEPPING Z600 (ZOOM)	

6-1-7. CABINET (R) SECTION



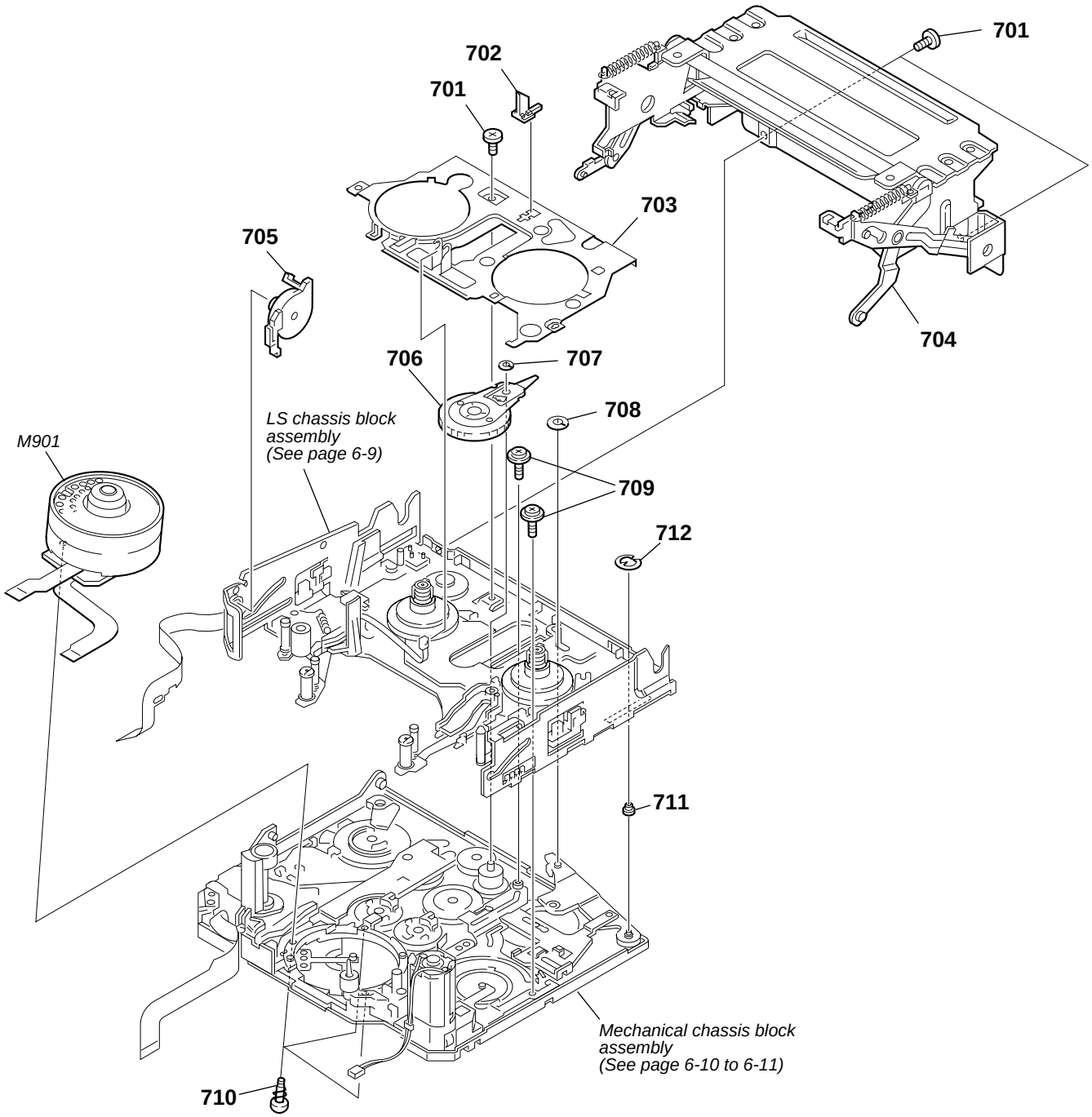
: The printed wiring board of the Control switch block (CF-2000) on which BT001 (lithium battery) is mounted, is not shown.]

CAUTION :
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

Ref. No.	Part No.	Description	Remarks
301	X-3952-090-1	CABINET (R) (21) ASSY	
302	3-072-154-01	BLIND (20), HINGE	
303	3-948-339-61	TAPPING	
304	1-476-977-11	SWITCH BLOCK, CONTROL(CF-2000)	
305	3-948-339-31	SCREW, TAPPING	
306	X-3952-101-1	CABINET (M) (21) ASSY, P	
307	3-072-186-01	PANEL FRAME (21)	
308	A-7078-040-A	PD-156 (S-2.5) BOARD, COMPLETE	
309	3-072-187-01	HOLDER (21), LCD	
310	3-968-729-51	SCREW (M2), LOCK ACE, P2	
311	3-067-347-01	MI SCREW M2 (H)	
312	3-072-184-01	CABINET (C) (21), P	
313	3-072-188-01	COVER (C) (21), HINGE	
* 314	3-058-672-01	CLAMP, HARNESS	
315	1-961-433-21	HARNESS (PD-115)	
316	1-418-802-11	SWITCH BLOCK, CONTROL (PR-10000)	
317	4-974-725-01	SCREW (M1.7X2.5), P	
318	X-3951-206-1	HINGE (12) ASSY	
319	3-072-189-01	COVER (M) (21), HINGE	
320	3-072-152-11	WINDOW (21), LCD (TRV408E)	
320	3-072-152-41	WINDOW (21), LCD (TRV208E)	
320	3-072-152-51	WINDOW (21), LCD (TRV107E)	
320	3-072-152-71	WINDOW (21), LCD (TRV108E)	
321	3-959-978-02	CUSHION, PANEL	
322	3-941-343-21	TAPE (A)	
LCD901	1-803-852-31	INDICATOR MODULE LIQUID CRYSTAL	
LCD902	A-7028-734-A	INDICATION LCD BLOCK ASSY (H)	
⚠ND901	1-518-796-11	TUBE, FLUORESCENT,COLD CATHODE	

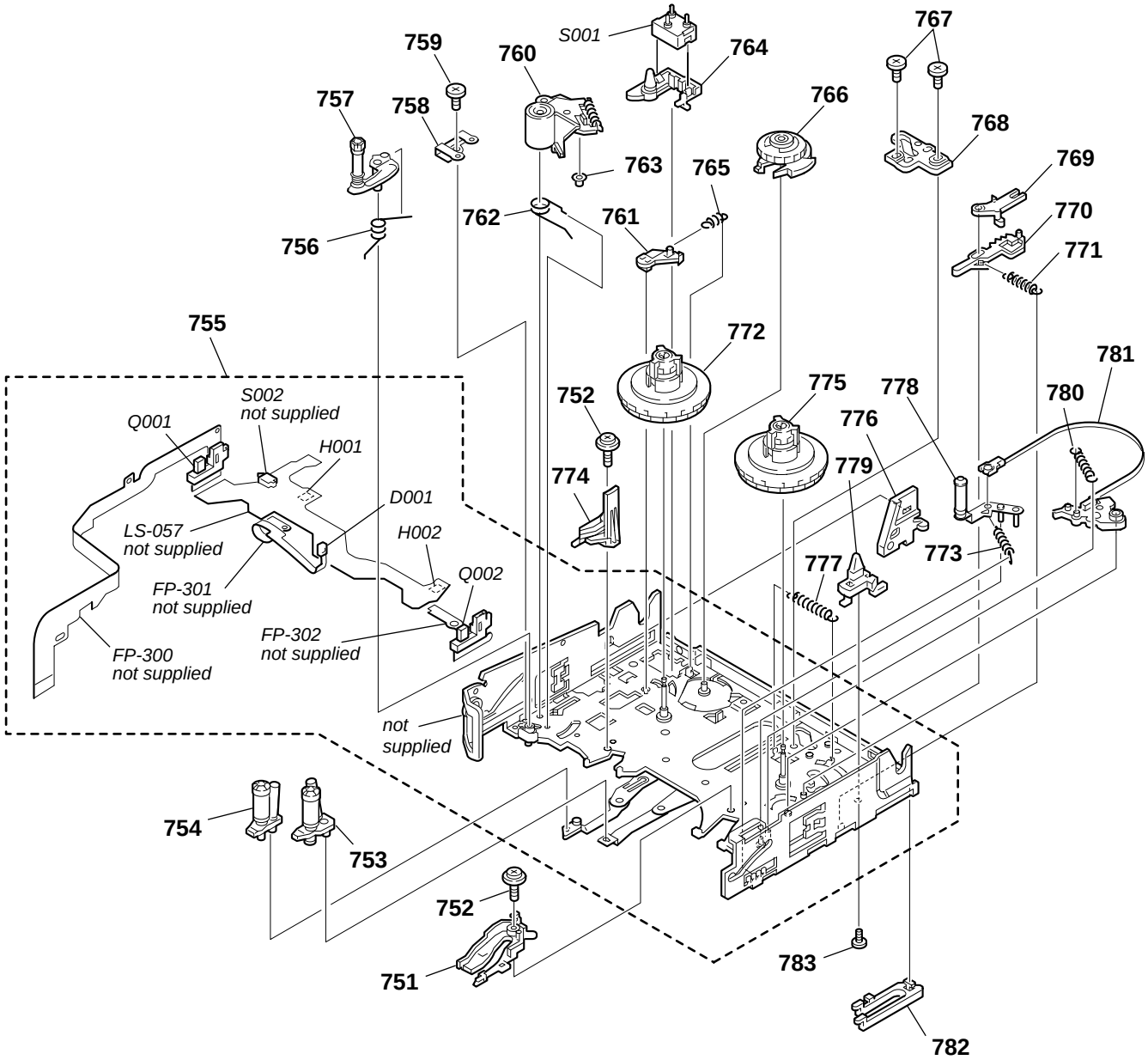
Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

6-1-8. CASSETTE COMPARTMENT ASSY, DRUM ASSY



Ref. No.	Part No.	Description	Remarks
701	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	
702	3-065-895-01	LEVER, REEL RELEASE	
703	3-065-896-01	PLATE, BLIND	
704	X-3951-298-1	CASSETTE COMPARTMENT ASSY	
705	X-3951-302-1	DAMPER ASSY	
706	X-3951-297-1	GEAR ASSY, R DRIVE	
707	3-065-840-01	CUT (0.98X3X0.13), LUMILER (W)	
708	3-065-935-01	HLC CUT 1.8X4X0.5	
709	3-947-503-01	SCREW (M1.4)	
710	X-3951-299-1	SCREW ASSY, DRUM FITTING	
711	3-074-309-01	ROLLER A, LS GUIDE	
712	7-624-101-04	STOP RING 1.2 (E TYPE)	
M901	A-7048-966-A	DRUM (DGH-0F4A-R)	

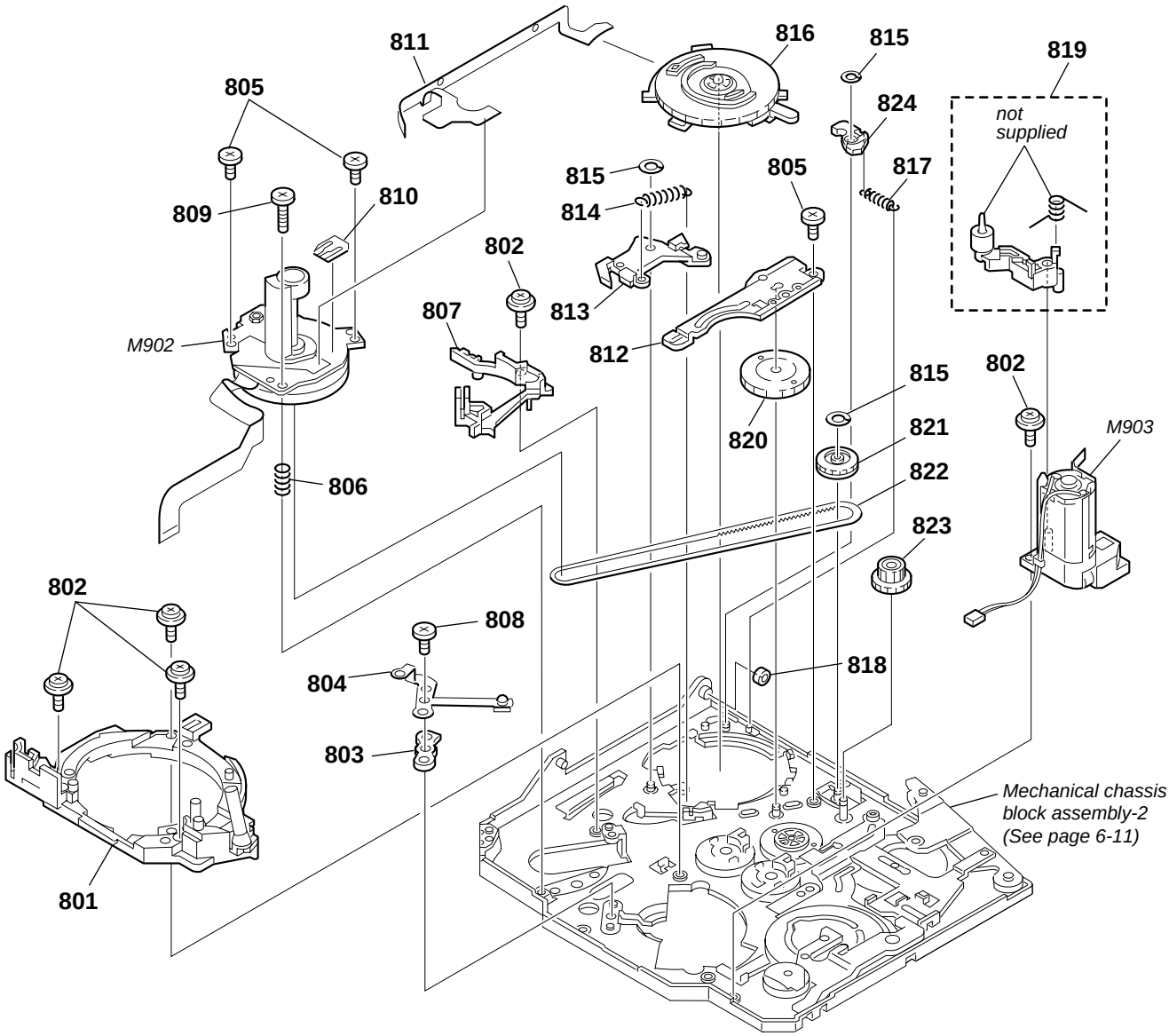
6-1-9. LS CHASSIS BLOCK ASSEMBLY



Ref. No.	Part No.	Description	Remarks
751	3-065-822-01	RAIL (S), GUIDE	
752	3-947-503-01	SCREW (M1.4)	
753	A-7096-416-A	BASE (S) BLOCK ASSY, GUIDE	
754	A-7096-415-A	BASE (T) BLOCK ASSY, GUIDE	
755	A-7096-426-A	CHASSIS ASSY, LS	
756	3-065-802-01	SPRING, TG7 ARM	
757	A-7096-414-A	ARM BLOCK ASSY, TG7	
758	3-065-801-01	RETAINER, TG7	
759	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	
760	X-3951-303-1	ARM ASSY, PINCH	
761	3-065-823-01	ARM, T RATCHET	
762	3-065-794-01	ROAD (SPR), PINCH ARM	
763	3-065-792-01	ROLLER, P LIM ARM	
764	3-065-834-01	GUIDE (T), CASSETTE	
765	3-065-824-01	SPRING, T RATCHET	
766	A-7096-417-A	SOFT ASSY, T	
767	7-627-852-38	SCREW,PRECISION +P1.7X1.8TYPE3	
768	3-065-832-01	PLATE, LS CAM	
769	3-065-828-01	ARM, S RATCHET	
770	3-065-829-01	PLATE, S RATCHET (RE)	

Ref. No.	Part No.	Description	Remarks
771	3-065-830-01	SPRING, S RATCHET	
772	X-3951-288-1	TABLE (T) ASSY, REEL	
773	3-065-819-01	SPRING, TG1 ARM	
774	3-065-821-01	RAIL (T), GUIDE	
775	X-3951-289-1	TABLE (S) ASSY, REEL	
776	3-065-833-01	GUIDE, LOCK	
777	3-065-831-01	PLATE (SPR), RE RETURN	
778	X-3951-304-1	ARM ASSY, TG1	
779	3-065-835-01	GUIDE (S), CASSETTE	
780	3-065-820-01	SPRING, RVS ARM	
781	X-3951-296-1	BAND (ASSY), BT	
782	3-065-836-01	COVER, LS GREASE	
783	3-067-167-01	SCREW (M1.4X2), CAMERA TAPPING	
D001	8-719-988-42	DIODE GL453 (TAPE LED)	
H001	8-719-033-37	ELEMENT, HALL HW-105C (T REEL)	
H002	8-719-033-37	ELEMENT, HALL HW-105C (S REEL)	
Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE TOP)	
Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE END)	
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (REC PROOF)	

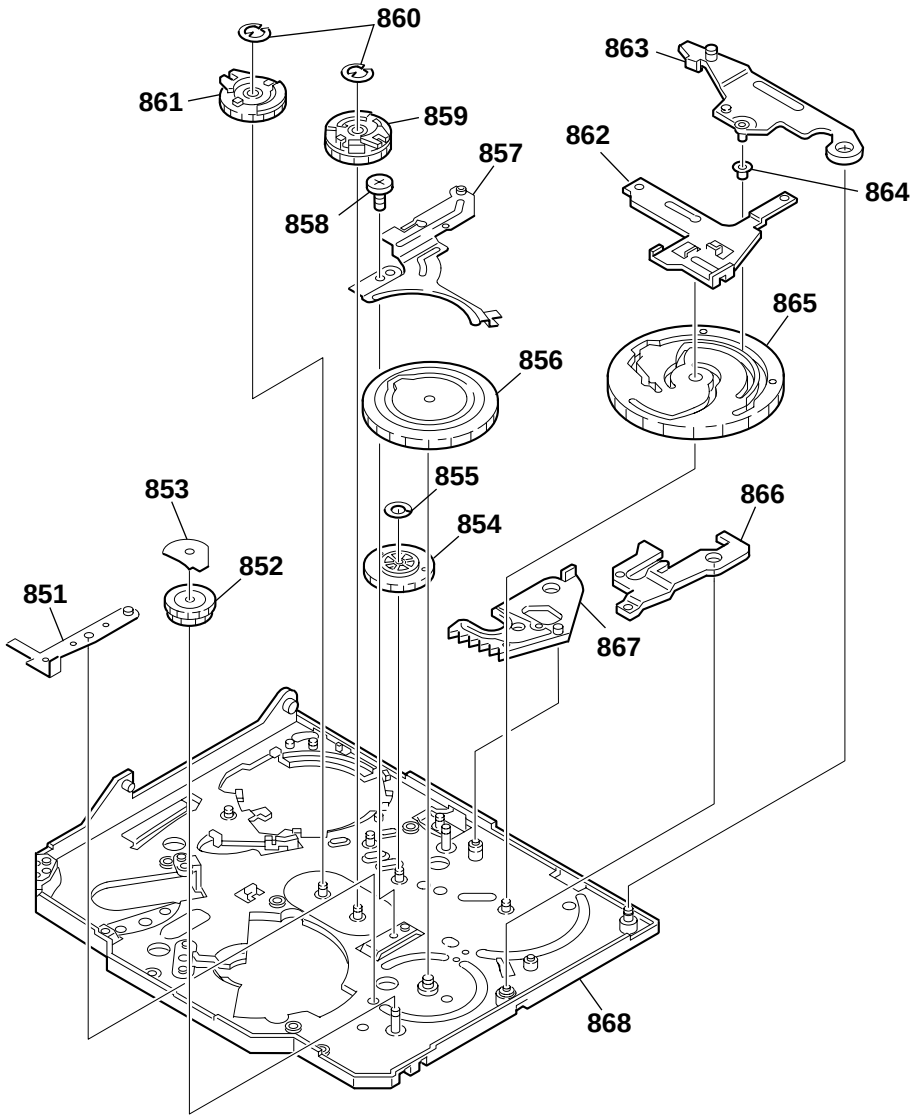
6-1-10. MECHANICAL CHASSIS BLOCK ASSEMBLY-1



Ref. No.	Part No.	Description	Remarks
801	A-7096-422-A	BASE ASSY, DRUM	
802	3-947-503-01	SCREW (M1.4)	
803	3-065-928-01	SPACER, GROUND	
804	3-065-927-01	GROUND, DRUM	
805	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	
806	3-067-154-01	SPRING, CAPSTAN	
807	3-065-931-01	RAIL (T2), GUIDE	
808	X-3947-398-1	SCREW ASSY, M1.7 PW	
809	3-065-933-01	PAN (2 MAIN 1.4X4.5), CAMERA	
810	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)	
811	1-680-434-11	FP-299 FLEXIBLE BOARD	
812	3-065-877-01	PLATE (T), GUIDE LOCK	
813	X-3951-301-1	PLATE ASSY, PINCH PRESSURE	

Ref. No.	Part No.	Description	Remarks
814	3-065-881-01	SPRING, P PRESSURE PLATE	
815	3-065-934-01	HLW CUT 0.98X3X0.25	
816	1-786-096-11	SWITCH, ROTARY	
817	3-065-898-01	SPRING, EJECT ARM	
818	3-065-870-01	ROLLER, LS GUIDE	
819	A-7096-421-A	ARM ASSY, HCL	
820	3-065-918-01	GEAR (2), CAM RELAY	
821	A-7096-419-A	GEAR ASSY, CHANGE	
822	3-065-902-01	BELT, TIMING	
823	3-065-905-01	GEAR, RELAY	
824	3-065-882-01	ARM, EJECT	
M902	8-835-701-01	MOTOR, DC SCE13A/C-NP (CAPSTAN)	
M903	A-7096-420-A	MOTOR ASSY, LD (LOADING)	

6-1-11. MECHANICAL CHASSIS BLOCK ASSEMBLY-2



Ref. No.	Part No.	Description	Remarks
851	3-065-920-01	ARM, HC DRIVE	
852	3-065-913-01	GEAR (4), LD	
853	3-065-914-01	SHEET, COVER	
854	3-065-917-01	GEAR (1), CAM RELAY	
855	3-065-934-01	HLW CUT 0.98X3X0.25	
856	3-065-915-01	GEAR (1), CAM	
857	3-065-878-01	PLATE (S), GUIDE LOCK	
858	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	
859	A-7096-413-A	GEAR (S) ASSY, GUIDE	
860	7-624-101-04	STOP RING 1.2 (E TYPE)	
861	A-7096-412-A	GEAR (T) ASSY, GUIDE	
862	X-3951-307-1	PLATE ASSY, M SLIDE	
863	X-3951-305-1	ARM ASSY, LS	
864	3-065-901-01	ROLLER, LS ARM	
865	3-065-916-01	GEAR (2), CAM	
866	3-065-919-01	ARM, T1 LIMITTER	
867	X-3951-308-1	ARM ASSY, GL	
868	X-3951-300-2	CHASSIS ASSY, MECHANICAL	

6-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: µF
- COILS
  uH: µH
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...
- Abbreviation
  AUS : Australian model
  HK : Hong Kong model
  CH : Chinese model

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

JE : Tourist model
EE : East European model
NE : North European model
RU : Russian model

Ref. No.	Part No.	Description			Remarks
	A-7078-035-A	CD-354 BOARD, COMPLETE			
		**********			
		(IC2191 is not include in this complete board.)			
		< CAPACITOR >			
C2191	1-126-395-11	ELECT	22uF	20%	16V
C2195	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C2196	1-128-994-21	ELECT CHIP	47uF	20%	10V
		< CONNECTOR >			
CN2191	1-766-344-21	CONNECTOR, FFC/FPC 14P			
CN2191	1-774-638-21	CONNECTOR, FFC/FPC 14P			
		< IC >			
IC2191	A-7012-087-A	CCD BLOCK ASSY (CCD IMAGER) (TRV107E/TRV108E/TRV208E)			
IC2191	A-7031-049-A	CCD BLOCK ASSY (CCD IMAGER) (TRV408E)			
		< COIL >			
L2191	1-469-528-91	INDUCTOR	100uH		
		< TRANSISTOR >			
Q2191	8-729-117-73	TRANSISTOR	2SC4178-F13F14-T1		
		< RESISTOR >			
R2191	1-208-635-11	RES-CHIP	10	5%	1/16W
R2193	1-218-965-11	RES-CHIP	10K	5%	1/16W
	A-7078-026-A	LB-073 (BW) BOARD, COMPLETE			
		**********			
		< CONNECTOR >			
CN7701	1-764-516-21	CONNECTOR, FFC/FPC (ZIF) 6P			
		< DIODE >			
D7701	8-719-070-91	DIODE TLSU1008(T05,SOY)			
⚠D7702	8-719-082-33	DIODE NSCW100-T38			
		< IC >			
IC7701	8-759-581-11	IC NJM2125F(TE2)			
		< TRANSISTOR >			
Q7701	8-729-054-48	TRANSISTOR	RN4983FE(TPLR3)		
Q7701	8-729-054-45	TRANSISTOR	UP04312008S0		
Q7702	8-729-054-48	TRANSISTOR	HN1B04FE-Y/GR(TPLR3)		
Q7702	8-759-054-48	TRANSISTOR	UP04601008S0		
		< RESISTOR >			
R7701	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R7702	1-208-941-11	METAL CHIP	180K	0.5%	1/16W
R7703	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R7704	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R7705	1-218-971-11	RES-CHIP	33K	5%	1/16W
R7706	1-211-977-11	METAL CHIP	22	0.5%	1/10W
		< THERMISTOR >			
TH7701	1-810-811-11	THERMISTOR, NTC (1608)			
	A-7078-040-A	PD-156 (S-2.5) BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C5501	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C5504	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5505	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5506	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5507	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5509	1-110-457-11	ELECT CHIP	3.3uF	20%	25V
C5510	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5511	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C5512	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5513	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5514	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C5515	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C5516	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C5517	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5518	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5519	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5520	1-115-407-11	ELECT CHIP	10uF	20%	16V
C5521	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C5524	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
C5527	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V

Be sure to read "Precautions upon replacing CCD imager" on page 4-8 when changing the CCD imager.

Ref. No.	Part No.	Description			Remarks
C5528	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C5530	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5531	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5603	1-164-657-11	CERAMIC CHIP	0.015uF	10%	50V
C5604	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5605	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
⚠C5606	1-131-959-91	CERAMIC CHIP	12PF	10%	3KV
C5607	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C5701	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< CONNECTOR >			
CN5501	1-815-031-11	CONNECTOR, FFC/FPC (ZIF) 24P			
* CN5502	1-573-984-11	CONNECTOR, BOARD TO BOARD 10P			
CN5601	1-764-709-11	CONNECTOR, FFC/FPC (LIF) 10P			
CN5701	1-794-998-41	PIN, CONNECTOR 20P			
CN5702	1-816-176-11	CONNECTOR, FFC/FPC (ZIF) 6P			
CN5703	1-816-178-11	CONNECTOR, FFC/FPC (ZIF) 20P			
CN5704	1-778-508-21	PIN, CONNECTOR (PC BOARD) 6P			
		< DIODE >			
D5502	8-719-084-47	DIODE 1SV290(TPL3)			
D5503	8-719-073-01	DIODE MA111-(K8).S0			
D5601	8-719-073-01	DIODE MA111-(K8).S0			
		< FERRITE BEAD >			
FB5501	1-414-760-21	FERRITE	0uH		
FB5502	1-414-760-21	FERRITE	0uH		
		< IC >			
IC5501	8-759-660-92	IC RB5P003AM1			
IC5502	8-759-714-77	IC LZ9FF474			
IC5601	8-759-564-49	IC TC7W53FU(TE12R)			
IC5602	8-759-075-70	IC TA75S393F-TE85R			
IC5701	8-759-573-02	IC BU9735K-E2			
		< COIL >			
L5501	1-469-525-91	INDUCTOR	10uH		
L5502	1-469-526-91	INDUCTOR	22uH		
L5503	1-412-956-21	INDUCTOR	27uH		
L5601	1-419-387-21	INDUCTOR	100uH		
L5601	1-419-387-11	INDUCTOR	100uH		
L5602	1-412-056-11	INDUCTOR	4.7uH		
		< TRANSISTOR >			
Q5502	8-729-041-23	TRANSISTOR	MGSF1P02LT1		
Q5503	8-729-054-48	TRANSISTOR	HN1B04FE-Y/GR(TPLR3)		
Q5504	8-729-054-48	TRANSISTOR	HN1B04FE-Y/GR(TPLR3)		
Q5505	8-729-042-29	TRANSISTOR	RN1104F(TPL3)		
Q5601	8-729-042-29	TRANSISTOR	RN1104F(TPL3)		
Q5602	6-550-083-01	TRANSISTOR	TPC6C01(TE85R)		
Q5603	8-729-054-48	TRANSISTOR	RN4983FE(TPLR3)		
		< RESISTOR >			
R5501	1-218-985-11	RES-CHIP	470K	5%	1/16W
R5503	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R5505	1-218-967-11	RES-CHIP	15K	5%	1/16W
R5506	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R5507	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5508	1-218-975-11	RES-CHIP	68K	5%	1/16W
R5509	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5510	1-218-975-11	RES-CHIP	68K	5%	1/16W
R5511	1-218-989-11	RES-CHIP	1M	5%	1/16W
R5512	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5513	1-218-989-11	RES-CHIP	1M	5%	1/16W
R5515	1-218-990-11	SHORT	0		
R5516	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5519	1-218-990-11	SHORT	0		
R5521	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5522	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5523	1-218-990-11	SHORT	0		
R5531	1-218-980-11	RES-CHIP	180K	5%	1/16W
R5532	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5533	1-218-989-11	RES-CHIP	1M	5%	1/16W
R5534	1-218-990-11	SHORT	0		
R5601	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R5602	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5603	1-218-966-11	RES-CHIP	12K	5%	1/16W
R5606	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5607	1-218-949-11	RES-CHIP	470	5%	1/16W
R5612	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5613	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5704	1-218-987-11	RES-CHIP	680K	5%	1/16W
		< COMPOSITION CIRCUIT BLOCK >			
RB5501	1-234-372-21	RES, NETWORK 100X4		(1005)	
RB5502	1-234-384-11	RES, NETWORK 1MX4		(1005)	
RB5503	1-234-378-21	RES, NETWORK 10KX4		(1005)	
		< TRANSFORMER >			
⚠T5601	1-435-227-11	TRANSFORMER, INVERTER			

	A-7078-027-A	SI-033 BOARD, COMPLETE			
		**********			
		(D750, D752, IC750, SE750, SE751 are not included in this complete board.)			
		< CAPACITOR >			
C751	1-128-015-11	ELECT CHIP	22uF	20%	4V
C752	1-128-015-11	ELECT CHIP	22uF	20%	4V
		< CONNECTOR >			
CN750	1-816-232-11	PIN, CONNECTOR (PC BOARD) 4P			
* CN751	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P			
CN752	1-779-332-11	CONNECTOR, FFC/FPC 16P			
		< DIODE >			
D750	8-719-060-65	DIODE DAC3825			
D751	8-719-073-01	DIODE MA111-(K8).S0			
D752	8-719-078-33	DIODE BR2222S-71-B2			
		< FERRITE BEAD >			
FB755	1-216-295-91	SHORT	0 (Note)		
FB756	1-414-813-11	FERRITE	0uH		

Note : Resistor is mounted to the location where FB755 is printed.

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SI-033 **VC-272**

Ref. No.	Part No.	Description			Remarks
		< IC >			
IC750	6-701-681-01	IC RPM7140-V4			(TRV107E/TRV208E/TRV408E)
		< TRANSISTOR >			
Q750	8-729-141-73	TRANSISTOR	2SD1938(F)-S(TX).SO		
		< RESISTOR >			
R750	1-216-009-91	RES-CHIP	22	5%	1/10W
R752	1-216-041-00	METAL CHIP	470	5%	1/10W
		< SENSOR >			
SE750	1-803-042-31	SENSOR, ANGULAR VELOCITY (PITCH)			(TRV408E)
SE751	1-803-042-41	SENSOR, ANGULAR VELOCITY (YAW)			(TRV408E)
	A-7028-969-A	VC-272 (P-V) BOARD, COMPLETE (SERVICE)			(TRV107E/TRV108E/TRV208E)
		**********			
	A-7028-971-A	VC-272 (P-VM) BOARD, COMPLETE (SERVICE)			(TRV408E)
		**********			
		< CAPACITOR >			
C001	1-164-933-11	CERAMIC CHIP	220PF	10%	50V
C002	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C003	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C004	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C005	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C008	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C009	1-164-172-11	CERAMIC CHIP	0.0056uF	10%	25V
C010	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C011	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C012	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C013	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C014	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	50V
C015	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C016	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C017	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C018	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C019	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C020	1-165-875-11	CERAMIC CHIP	10uF	10%	10V
C021	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C022	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C023	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C024	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C025	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C026	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C027	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C028	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C029	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C030	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C031	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C032	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C033	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C034	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C035	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C036	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C037	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V

Ref. No.	Part No.	Description			Remarks
C038	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C038	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C039	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C040	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C041	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C042	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C043	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C045	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C046	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C047	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C048	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C049	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C050	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C051	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C052	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C053	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C054	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C055	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C057	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C058	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C062	1-127-692-11	CERAMIC CHIP	10uF	10%	6.3V
C101	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C102	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C103	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C104	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C106	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C107	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C108	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C109	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C110	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C111	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C112	1-164-872-11	CERAMIC CHIP	82PF	5%	50V
C113	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C114	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C115	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C116	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C117	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C119	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C121	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C125	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C126	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C127	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C128	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C129	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C130	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C131	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C132	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C133	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C134	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C135	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C136	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C151	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C152	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C155	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C156	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C157	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C158	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C160	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C161	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C162	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

Ref. No.	Part No.	Description			Remarks
C163	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C164	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C165	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C166	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C167	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C168	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C169	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C170	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C171	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C172	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C173	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C174	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C175	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C176	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C177	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C178	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	50V
C182	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C184	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C185	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C186	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C187	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C188	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C190	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C195	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C251	1-127-692-11	CERAMIC CHIP	10uF	10%	6.3V
C252	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C253	1-165-708-11	ELECT	47uF	20%	6.3V
C254	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C256	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C257	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C259	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C271	1-164-858-11	CERAMIC CHIP	22PF	5%	50V
C272	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C273	1-164-858-11	CERAMIC CHIP	22PF	5%	50V
C276	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C277	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C278	1-131-861-91	TANTAL. CHIP	4.7uF	20%	20V
C279	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C279	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C280	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C281	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C282	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C284	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C285	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C286	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C287	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C288	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C289	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C290	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C291	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C292	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C293	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C294	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C295	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C296	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C297	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C302	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C303	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C304	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C304	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V

Ref. No.	Part No.	Description			Remarks
C305	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C306	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C307	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C308	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C309	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C310	1-110-449-11	ELECT CHIP	47uF	20%	6.3V
C311	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C312	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C313	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C315	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C318	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C319	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C352	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C352	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C354	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C357	1-125-918-11	ELECT CHIP	22uF	20%	6.3V
C358	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C359	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C359	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C363	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C364	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C365	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C366	1-110-457-11	ELECT CHIP	3.3uF	20%	25V
C367	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C367	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C369	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C371	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C372	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C374	1-110-442-11	ELECT CHIP	22uF	20%	4V
C375	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C380	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C381	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C383	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C384	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C385	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C386	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C389	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C390	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C392	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C393	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C394	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C396	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C397	1-164-870-11	CERAMIC CHIP	68PF	5%	50V
C398	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C401	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C402	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C403	1-164-850-11	CERAMIC CHIP	10PF	0.50PF	50V
C404	1-164-850-11	CERAMIC CHIP	10PF	0.50PF	50V
C405	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C406	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V (TRV408E)
C407	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V (TRV408E)
C408	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C410	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C411	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C451	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

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Ref. No.	Part No.	Description			Remarks
C452	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C453	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C454	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C455	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C456	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C458	1-126-603-11	ELECT CHIP	4.7uF	20%	35V
C459	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C460	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C461	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C462	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C463	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C464	1-164-933-11	CERAMIC CHIP	220PF	10%	50V
C465	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C466	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C467	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C468	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C469	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C470	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C471	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C472	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C473	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C475	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C476	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C477	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C478	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C479	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C480	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C481	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C482	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C483	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C484	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C485	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C486	1-113-619-11	CERAMIC CHIP	0.47uF		10V
C487	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C488	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C489	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C490	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C491	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C492	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C501	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C502	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C503	1-126-607-11	ELECT CHIP	47uF	20%	4V
C504	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C506	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C507	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C508	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C509	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C510	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C511	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C512	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C513	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C514	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C515	1-164-858-11	CERAMIC CHIP	22PF	5%	50V
C516	1-164-856-81	CERAMIC CHIP	18PF	5%	50V
C517	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C518	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C602	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C603	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C701	1-135-639-11	ELECT CHIP	47uF	20%	6.3V
C708	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V

Ref. No.	Part No.	Description			Remarks
C901	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V (TRV408E)
C902	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V (TRV408E)
C903	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V (TRV408E)
C904	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V (TRV408E)
C905	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V (TRV408E)
C906	1-110-666-11	ELECT CHIP	22uF	20%	6.3V (TRV408E)
C908	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V (TRV408E)
C910	1-110-666-11	ELECT CHIP	22uF	20%	6.3V (TRV408E)
C911	1-128-934-91	CERAMIC CHIP	0.33uF	20%	10V (TRV408E)
C913	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V (TRV408E)
C2301	1-164-862-11	CERAMIC CHIP	33PF	5%	50V
C2302	1-164-862-11	CERAMIC CHIP	33PF	5%	50V
C2303	1-164-858-11	CERAMIC CHIP	22PF	5%	50V
C2304	1-164-858-11	CERAMIC CHIP	22PF	5%	50V
C2305	1-164-876-11	CERAMIC CHIP	120PF	5%	50V
C2306	1-164-876-11	CERAMIC CHIP	120PF	5%	50V
C2307	1-164-862-11	CERAMIC CHIP	33PF	5%	50V
C2308	1-164-862-11	CERAMIC CHIP	33PF	5%	50V
C2310	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C2311	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C2312	1-127-692-11	CERAMIC CHIP	10uF	10%	6.3V
C2315	1-164-876-11	CERAMIC CHIP	120PF	5%	50V
C2316	1-164-876-11	CERAMIC CHIP	120PF	5%	50V
C2317	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2318	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2319	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C2320	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2321	1-126-246-11	ELECT CHIP	220uF	20%	4V
C2322	1-110-442-11	ELECT CHIP	22uF	20%	4V
C2323	1-126-246-11	ELECT CHIP	220uF	20%	4V
C2324	1-110-442-11	ELECT CHIP	22uF	20%	4V
C2325	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2326	1-127-692-11	CERAMIC CHIP	10uF	10%	6.3V

< CONNECTOR >

	CN101	1-766-341-21	CONNECTOR, FFC/FPC 11P
	CN271	1-779-331-11	CONNECTOR, FFC/FPC 14P
	CN301	1-750-360-21	CONNECTOR, FFC/FPC (ZIF) 24P
	CN701	1-794-998-41	PIN, CONNECTOR 20P
	CN702	1-766-350-21	CONNECTOR, FFC/FPC 20P
	CN703	1-816-177-11	CONNECTOR, FFC/FPC (ZIF) 16P
*	CN704	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P
	CN705	1-779-334-11	CONNECTOR, FFC/FPC 20P
	CN706	1-766-340-21	CONNECTOR, FFC/FPC 10P
	CN707	1-766-352-21	CONNECTOR, FFC/FPC 22P
	CN709	1-779-335-21	CONNECTOR, FFC/FPC 22P
	CN710	1-750-076-21	CONNECTOR, FFC/FPC 12P
	CN711	1-764-704-21	CONNECTOR, FFC/FPC (LIF) 5P
	CN712	1-766-345-21	CONNECTOR, FFC/FPC 15P
	CN713	1-766-346-21	CONNECTOR, FFC/FPC 16P

Ref. No.	Part No.	Description	Remarks
		< DIODE >	
D001	8-719-081-19	DIODE 1SS383(T5RSONY1)	
D002	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D002	8-719-075-15	DIODE MAZT082H08S0	
D006	6-500-127-01	DIODE HN2S02FU(T5RSONY)	
D007	8-719-081-19	DIODE 1SS383(T5RSONY1)	
D151	8-719-081-25	DIODE JDV3C11(TPH3)	
D152	8-719-081-25	DIODE JDV3C11(TPH3)	
D272	8-719-082-63	DIODE 1SV329(TPL3)	
D301	8-719-073-01	DIODE MA111-(K8).S0	
D302	8-719-073-03	DIODE MA8082-(K8).S0	
D501	8-719-421-67	DIODE MA132WK-(K8).SO	
D502	8-719-421-67	DIODE MA132WK-(K8).SO	
D503	8-719-421-27	DIODE MA728-(K8).S0	
D504	8-719-073-01	DIODE MA111-(K8).S0	
D505	8-719-073-01	DIODE MA111-(K8).S0	
D702	8-719-075-15	DIODE MAZT082H08S0	
		< PIN CONNECTOR >	
ET101	1-815-032-21	PIN, CONNECTOR (CASE, SHIELD)	
ET102	1-815-032-21	PIN, CONNECTOR (CASE, SHIELD)	
		< FUSE >	
⚠F001	1-576-406-21	FUSE, MICRO (1.4A/36V) (1608)	
⚠F002	1-576-406-21	FUSE, MICRO (1.4A/36V) (1608)	
⚠F003	1-576-406-21	FUSE, MICRO (1.4A/36V) (1608)	
⚠F004	1-576-406-21	FUSE, MICRO (1.4A/36V) (1608)	
		< FERRITE BEAD >	
FB001	1-414-760-21	FERRITE 0uH	
FB101	1-414-228-11	FERRITE 0uH	
FB102	1-414-228-11	FERRITE 0uH	
FB275	1-414-760-21	FERRITE 0uH	
FB601	1-414-760-21	FERRITE 0uH	
FB602	1-414-760-21	FERRITE 0uH	
		< IC >	
IC001	8-752-102-78	IC CXA3282R-T6	
IC101	8-752-093-69	IC CXA3265R-T4	
IC151	8-759-670-78	IC HG76C012FL	
IC153	6-800-965-01	IC BU3095-03FV-E2	
IC251	6-701-335-01	IC BH7873FV-E2	
IC271	8-752-386-72	IC CXD2444R-T4	
IC272	8-759-699-92	IC AD80013AJSTRL	
IC301	8-759-637-96	IC MPC17A135DTAEL	
IC302	8-759-681-42	IC NJM12902V(TE2)	
IC351	8-752-102-57	IC CXA3285BR-T6	
IC401	8-759-445-94	IC BR9080ARFV-WE2	
IC402	6-801-122-01	IC MB91191RPFF-G-168-BND-ER	
IC451	8-759-640-85	IC CXA8096R-TBM	
IC452	8-759-431-41	IC LB1991V-TLM	
IC502	6-701-718-01	IC NJU7285EV(TE2)	
IC503	8-752-930-54	IC CXP921048A-060R-T6	
IC504	8-759-679-91	IC S-817A33ANB-CUW-T2	
IC601	8-759-713-19	IC BH2222FV-E2	
IC901	8-759-489-19	IC uPC6756GR-8JG-E2 (TRV408E)	
IC2301	8-759-662-95	IC BA7665FS-E2	

Ref. No.	Part No.	Description	Remarks
		< COIL >	
L001	1-419-354-21	INDUCTOR 22uH	
L002	1-416-670-11	INDUCTOR 33uH	
L003	1-412-056-11	INDUCTOR 4.7uH	
L004	1-419-354-21	INDUCTOR 22uH	
L005	1-419-354-21	INDUCTOR 22uH	
L006	1-416-670-11	INDUCTOR 33uH	
L007	1-419-354-21	INDUCTOR 22uH	
L008	1-469-524-91	INDUCTOR 4.7uH	
L009	1-469-524-91	INDUCTOR 4.7uH	
L010	1-469-524-91	INDUCTOR 4.7uH	
L011	1-469-524-91	INDUCTOR 4.7uH	
L012	1-469-526-91	INDUCTOR 22uH	
L013	1-469-524-91	INDUCTOR 4.7uH	
L014	1-469-526-91	INDUCTOR 22uH	
L016	1-414-400-41	INDUCTOR 22uH	
L017	1-469-524-91	INDUCTOR 4.7uH	
L101	1-414-406-41	INDUCTOR 220uH	
L102	1-412-952-11	INDUCTOR 12uH	
L103	1-469-526-91	INDUCTOR 22uH	
L104	1-414-406-41	INDUCTOR 220uH	
L151	1-469-570-11	INDUCTOR 10uH	
L152	1-469-570-11	INDUCTOR 10uH	
L154	1-469-570-11	INDUCTOR 10uH	
L155	1-469-570-11	INDUCTOR 10uH	
L156	1-400-196-11	INDUCTOR 0uH	
L271	1-469-570-11	INDUCTOR 10uH	
L272	1-469-525-91	INDUCTOR 10uH	
L301	1-469-525-91	INDUCTOR 10uH	
L303	1-469-570-11	INDUCTOR 10uH	
L705	1-416-668-41	INDUCTOR 10uH	
L901	1-469-570-11	INDUCTOR 10uH (TRV408E)	
L2301	1-469-525-91	INDUCTOR 10uH	
L2302	1-412-948-11	INDUCTOR 5.6uH	
L2303	1-412-948-11	INDUCTOR 5.6uH	
L2304	1-412-950-11	INDUCTOR 8.2uH	
L2305	1-412-950-11	INDUCTOR 8.2uH	
		< TRANSISTOR >	
Q001	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q002	8-729-056-54	TRANSISTOR TPCS8302(TE12L)	
Q003	6-550-091-01	TRANSISTOR 2SA2058(TE85L)	
Q004	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q006	8-729-046-98	TRANSISTOR CPH6702-TL-E	
Q007	8-729-043-60	TRANSISTOR CPH6102-TL-E	
Q008	8-729-046-98	TRANSISTOR CPH6702-TL-E	
Q009	8-729-046-98	TRANSISTOR CPH6702-TL-E	
Q010	8-729-046-98	TRANSISTOR CPH6702-TL-E	
Q011	8-729-046-98	TRANSISTOR CPH6702-TL-E	
Q012	8-729-046-98	TRANSISTOR CPH6702-TL-E	
Q014	8-729-053-52	TRANSISTOR HN1C01FE-Y/GR(TPLR3)	
Q015	8-729-101-07	TRANSISTOR 2SB798-T1-DLDK	
Q016	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q018	8-729-042-29	TRANSISTOR RN1104F(TPL3)	

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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Ref. No.	Part No.	Description		Remarks
Q019	8-729-053-54	TRANSISTOR	HN1A01FE-Y/GR(TPLR3)	
Q020	8-729-053-52	TRANSISTOR	HN1C01FE-Y/GR(TPLR3)	
Q021	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)	
Q022	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)	
Q023	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)	
Q026	8-729-053-54	TRANSISTOR	HN1A01FE-Y/GR(TPLR3)	
Q027	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)	
Q073	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)	
Q101	8-729-047-19	TRANSISTOR	2SA1965-S-TL	
Q102	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)	
Q103	8-729-054-48	TRANSISTOR	HN1B04FE-Y/GR(TPLR3)	
Q105	8-729-042-29	TRANSISTOR	RN1104F(TPL3)	
Q107	8-729-037-63	TRANSISTOR	UN9115J-(K8).SO	
Q151	8-729-054-48	TRANSISTOR	HN1B04FE-Y/GR(TPLR3)	
Q152	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)	
Q153	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)	
Q154	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)	
Q159	8-729-053-54	TRANSISTOR	HN1A01FE-Y/GR(TPLR3)	
Q301	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)	
Q302	8-729-054-51	TRANSISTOR	RN2910FE(TPLR3)	
Q303	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)	
Q354	8-729-053-52	TRANSISTOR	HN1C01FE-Y/GR(TPLR3)	
Q355	8-729-053-56	TRANSISTOR	RN4990FE(TPLR3)	
Q451	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)	
Q501	8-729-041-43	TRANSISTOR	HN1L02FU(TE85R)	
Q502	8-729-042-74	TRANSISTOR	UN9216J-(K8).SO	
Q503	8-729-053-58	TRANSISTOR	RN1904FE(TPLR3)	
Q702	6-550-091-01	TRANSISTOR	2SA2058(TE85L)	
Q703	8-729-028-26	TRANSISTOR	2SK1829(TE85L)	
Q704	8-729-402-16	TRANSISTOR	XN4608-TX	
Q2301	8-729-053-54	TRANSISTOR	HN1A01FE-Y/GR(TPLR3)	
Q2302	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)	
Q2303	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)	
Q2304	8-729-053-52	TRANSISTOR	HN1C01FE-Y/GR(TPLR3)	
Q2305	8-729-053-56	TRANSISTOR	RN4990FE(TPLR3)	

< RESISTOR >

Ref. No.	Part No.	Description			
R001	1-218-969-11	RES-CHIP	22K	5%	1/16W
R002	1-218-971-11	RES-CHIP	33K	5%	1/16W
R003	1-218-953-11	RES-CHIP	1K	5%	1/16W
R006	1-218-969-11	RES-CHIP	22K	5%	1/16W
R007	1-218-953-11	RES-CHIP	1K	5%	1/16W
R008	1-218-977-11	RES-CHIP	100K	5%	1/16W
R010	1-218-989-11	RES-CHIP	1M	5%	1/16W
R011	1-218-945-11	RES-CHIP	220	5%	1/16W
R012	1-218-971-11	RES-CHIP	33K	5%	1/16W
R014	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R016	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R017	1-218-953-11	RES-CHIP	1K	5%	1/16W
R018	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R020	1-218-965-11	RES-CHIP	10K	5%	1/16W
R021	1-218-969-11	RES-CHIP	22K	5%	1/16W
R023	1-218-971-11	RES-CHIP	33K	5%	1/16W
R025	1-218-973-11	RES-CHIP	47K	5%	1/16W
R026	1-218-969-11	RES-CHIP	22K	5%	1/16W
R027	1-218-965-11	RES-CHIP	10K	5%	1/16W
R029	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R031	1-218-973-11	RES-CHIP	47K	5%	1/16W
R032	1-218-969-11	RES-CHIP	22K	5%	1/16W
R033	1-218-969-11	RES-CHIP	22K	5%	1/16W
R034	1-218-965-11	RES-CHIP	10K	5%	1/16W
R035	1-218-973-11	RES-CHIP	47K	5%	1/16W
R036	1-218-977-11	RES-CHIP	100K	5%	1/16W
R037	1-218-977-11	RES-CHIP	100K	5%	1/16W
R038	1-218-969-11	RES-CHIP	22K	5%	1/16W
R040	1-218-969-11	RES-CHIP	22K	5%	1/16W
R041	1-208-931-11	METAL CHIP	68K	0.5%	1/16W (TRV408E)
R041	1-208-935-11	METAL CHIP	100K	0.5%	1/16W (TRV107E/TRV108E/TRV208E)
R042	1-218-965-11	RES-CHIP	10K	5%	1/16W (TRV107E/TRV108E/TRV208E)
R042	1-218-969-11	RES-CHIP	22K	5%	1/16W (TRV408E)
R043	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R044	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R045	1-208-721-11	METAL CHIP	39K	0.5%	1/16W (TRV107E/TRV108E/TRV208E)
R045	1-208-927-11	METAL CHIP	47K	0.5%	1/16W (TRV408E)
R046	1-208-703-11	METAL CHIP	6.8K	0.5%	1/16W (TRV107E/TRV108E/TRV208E)
R046	1-208-713-11	METAL CHIP	18K	0.5%	1/16W (TRV408E)
R047	1-218-977-11	RES-CHIP	100K	5%	1/16W
R048	1-218-977-11	RES-CHIP	100K	5%	1/16W
R049	1-218-990-11	SHORT	0		
R050	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R051	1-208-931-11	METAL CHIP	68K	0.5%	1/16W
R054	1-218-990-11	SHORT	0		
R077	1-218-977-11	RES-CHIP	100K	5%	1/16W
R078	1-218-966-11	RES-CHIP	12K	5%	1/16W
R101	1-218-936-11	RES-CHIP	39	5%	1/16W
R102	1-218-950-11	RES-CHIP	560	5%	1/16W
R105	1-218-941-81	RES-CHIP	100	5%	1/16W
R106	1-218-970-11	RES-CHIP	27K	5%	1/16W
R107	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R108	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R109	1-218-970-11	RES-CHIP	27K	5%	1/16W
R110	1-218-945-11	RES-CHIP	220	5%	1/16W
R111	1-218-945-11	RES-CHIP	220	5%	1/16W
R112	1-218-946-11	RES-CHIP	270	5%	1/16W
R113	1-218-945-11	RES-CHIP	220	5%	1/16W
R115	1-218-971-11	RES-CHIP	33K	5%	1/16W
R116	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R117	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R118	1-208-939-11	METAL CHIP	150K	0.5%	1/16W
R154	1-218-965-11	RES-CHIP	10K	5%	1/16W
R155	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R156	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R157	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R158	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R163	1-218-990-11	SHORT	0		
R166	1-218-990-11	SHORT	0		
R168	1-218-962-11	RES-CHIP	5.6K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R169	1-218-953-11	RES-CHIP	1K	5%	1/16W
R170	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R171	1-218-949-11	RES-CHIP	470	5%	1/16W
R172	1-218-941-81	RES-CHIP	100	5%	1/16W
R173	1-218-972-11	RES-CHIP	39K	5%	1/16W
R174	1-218-952-11	RES-CHIP	820	5%	1/16W
R175	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R177	1-218-966-11	RES-CHIP	12K	5%	1/16W
R178	1-218-949-11	RES-CHIP	470	5%	1/16W
R179	1-218-945-11	RES-CHIP	220	5%	1/16W
R180	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
R181	1-218-966-11	RES-CHIP	12K	5%	1/16W
R182	1-218-946-11	RES-CHIP	270	5%	1/16W
R183	1-218-946-11	RES-CHIP	270	5%	1/16W
R184	1-218-966-11	RES-CHIP	12K	5%	1/16W
R185	1-218-966-11	RES-CHIP	12K	5%	1/16W
R186	1-218-946-11	RES-CHIP	270	5%	1/16W
R188	1-218-966-11	RES-CHIP	12K	5%	1/16W
R189	1-218-966-11	RES-CHIP	12K	5%	1/16W
R190	1-218-946-11	RES-CHIP	270	5%	1/16W
R192	1-218-966-11	RES-CHIP	12K	5%	1/16W
R193	1-218-989-11	RES-CHIP	1M	5%	1/16W
R195	1-218-967-11	RES-CHIP	15K	5%	1/16W
R196	1-218-967-11	RES-CHIP	15K	5%	1/16W
R197	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
R198	1-218-945-11	RES-CHIP	220	5%	1/16W
R199	1-218-953-11	RES-CHIP	1K	5%	1/16W
R200	1-218-965-11	RES-CHIP	10K	5%	1/16W
R205	1-218-949-11	RES-CHIP	470	5%	1/16W
R208	1-218-990-11	SHORT	0		
R210	1-216-864-11	METAL CHIP	0	5%	1/16W
R212	1-216-864-11	METAL CHIP	0	5%	1/16W
R217	1-218-949-11	RES-CHIP	470	5%	1/16W
R251	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R253	1-218-965-11	RES-CHIP	10K	5%	1/16W
R254	1-218-968-11	RES-CHIP	18K	5%	1/16W
R255	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R256	1-218-990-11	SHORT	0		
R274	1-218-977-11	RES-CHIP	100K	5%	1/16W
R275	1-218-990-11	SHORT	0		
R280	1-218-989-11	RES-CHIP	1M	5%	1/16W
R281	1-218-985-11	RES-CHIP	470K	5%	1/16W
R293	1-218-990-11	SHORT	0		
R294	1-216-864-11	METAL CHIP	0	5%	1/16W
R301	1-218-973-11	RES-CHIP	47K	5%	1/16W
R304	1-218-953-11	RES-CHIP	1K	5%	1/16W
R306	1-208-635-11	RES-CHIP	10	5%	1/16W
R307	1-218-989-11	RES-CHIP	1M	5%	1/16W
R308	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R309	1-218-965-11	RES-CHIP	10K	5%	1/16W
R310	1-218-981-11	RES-CHIP	220K	5%	1/16W
R311	1-218-985-11	RES-CHIP	470K	5%	1/16W
R312	1-218-985-11	RES-CHIP	470K	5%	1/16W
R313	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R314	1-218-967-11	RES-CHIP	15K	5%	1/16W
R316	1-218-985-11	RES-CHIP	470K	5%	1/16W
R317	1-218-953-11	RES-CHIP	1K	5%	1/16W
R318	1-218-953-11	RES-CHIP	1K	5%	1/16W
R319	1-218-947-11	RES-CHIP	330	5%	1/16W
R321	1-218-953-11	RES-CHIP	1K	5%	1/16W
R322	1-218-965-11	RES-CHIP	10K	5%	1/16W
R323	1-218-973-11	RES-CHIP	47K	5%	1/16W
R351	1-218-953-11	RES-CHIP	1K	5%	1/16W
R356	1-218-990-11	SHORT	0		
R363	1-218-964-11	RES-CHIP	8.2K	5%	1/16W
R364	1-218-977-11	RES-CHIP	100K	5%	1/16W
R368	1-218-979-11	RES-CHIP	150K	5%	1/16W
R372	1-218-973-11	RES-CHIP	47K	5%	1/16W
R373	1-218-985-11	RES-CHIP	470K	5%	1/16W
R379	1-218-952-11	RES-CHIP	820	5%	1/16W
R382	1-218-973-11	RES-CHIP	47K	5%	1/16W
R401	1-218-953-11	RES-CHIP	1K	5%	1/16W
R402	1-218-986-11	RES-CHIP	560K	5%	1/16W
R404	1-218-977-11	RES-CHIP	100K	5%	1/16W
R417	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R428	1-218-977-11	RES-CHIP	100K	5%	1/16W
R441	1-218-970-11	METAL CHIP	27K	0.5%	1/16W
R442	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R451	1-218-973-11	RES-CHIP	47K	5%	1/16W
R452	1-218-983-11	RES-CHIP	330K	5%	1/16W
R457	1-218-949-11	RES-CHIP	470	5%	1/16W
R458	1-217-671-11	METAL CHIP	1	5%	1/10W
R459	1-217-671-11	METAL CHIP	1	5%	1/10W
R460	1-217-671-11	METAL CHIP	1	5%	1/10W
R461	1-218-944-11	RES-CHIP	180	5%	1/16W
R462	1-218-943-11	RES-CHIP	150	5%	1/16W
R464	1-218-949-11	RES-CHIP	470	5%	1/16W
R465	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R466	1-218-965-11	RES-CHIP	10K	5%	1/16W
R467	1-218-973-11	RES-CHIP	47K	5%	1/16W
R468	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R469	1-218-976-11	RES-CHIP	82K	5%	1/16W
R470	1-218-965-11	RES-CHIP	10K	5%	1/16W
R471	1-218-446-11	METAL CHIP	1	5%	1/10W
R472	1-218-446-11	METAL CHIP	1	5%	1/10W
R474	1-218-973-11	RES-CHIP	47K	5%	1/16W
R480	1-218-973-11	RES-CHIP	47K	5%	1/16W
R481	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R482	1-218-989-11	RES-CHIP	1M	5%	1/16W
R483	1-218-972-11	RES-CHIP	39K	5%	1/16W
R484	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R485	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R486	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R502	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R518	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R519	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R520	1-218-985-11	METAL CHIP	470K	0.5%	1/16W
R521	1-218-985-11	METAL CHIP	470K	0.5%	1/16W
R525	1-218-953-11	RES-CHIP	1K	5%	1/16W
R542	1-218-973-11	RES-CHIP	47K	5%	1/16W
R543	1-218-986-11	RES-CHIP	560K	5%	1/16W
R552	1-219-570-11	RES-CHIP	10M	5%	1/10W
R554	1-218-977-11	RES-CHIP	100K	5%	1/16W
R558	1-218-949-11	RES-CHIP	470	5%	1/16W
R559	1-218-935-11	RES-CHIP	33	5%	1/16W
R561	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R562	1-218-953-11	RES-CHIP	1K	5%	1/16W
R567	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R569	1-218-965-11	RES-CHIP	10K	5%	1/16W
R612	1-218-965-11	RES-CHIP	10K	5%	1/16W

VC-272 **VF-150**

Ref. No.	Part No.	Description			Remarks
R613	1-218-974-11	RES-CHIP	56K	5%	1/16W (TRV107E/TRV108E/TRV208E)
R613	1-218-975-11	RES-CHIP	68K	5%	1/16W (TRV408E)
R614	1-218-974-11	RES-CHIP	56K	5%	1/16W (TRV408E)
R614	1-218-975-11	RES-CHIP	68K	5%	1/16W (TRV107E/TRV108E/TRV208E)
R701	1-218-953-11	RES-CHIP	1K	5%	1/16W
R703	1-218-977-11	RES-CHIP	100K	5%	1/16W
R704	1-218-953-11	RES-CHIP	1K	5%	1/16W
R705	1-218-962-11	RES-CHIP	5.6K	5%	1/16W
R706	1-218-953-11	RES-CHIP	1K	5%	1/16W
R707	1-218-969-11	RES-CHIP	22K	5%	1/16W
R713	1-218-945-11	RES-CHIP	220	5%	1/16W
R721	1-218-990-11	SHORT	0		
R905	1-218-989-11	RES-CHIP	1M	5%	1/16W (TRV408E)
R906	1-218-965-11	RES-CHIP	10K	5%	1/16W (TRV408E)
R907	1-218-965-11	RES-CHIP	10K	5%	1/16W (TRV408E)
R908	1-218-989-11	RES-CHIP	1M	5%	1/16W (TRV408E)
R909	1-218-967-11	RES-CHIP	15K	5%	1/16W (TRV408E)
R2301	1-218-946-11	RES-CHIP	270	5%	1/16W
R2302	1-218-946-11	RES-CHIP	270	5%	1/16W
R2307	1-218-953-11	RES-CHIP	1K	5%	1/16W
R2310	1-218-945-11	RES-CHIP	220	5%	1/16W
R2311	1-218-945-11	RES-CHIP	220	5%	1/16W
R2312	1-218-945-11	RES-CHIP	220	5%	1/16W
R2313	1-218-945-11	RES-CHIP	220	5%	1/16W
R2314	1-218-949-11	RES-CHIP	470	5%	1/16W
R2315	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2316	1-218-949-11	RES-CHIP	470	5%	1/16W
R2317	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2318	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2319	1-218-968-11	RES-CHIP	18K	5%	1/16W
R2320	1-218-965-11	RES-CHIP	10K	5%	1/16W
R2321	1-218-968-11	RES-CHIP	18K	5%	1/16W

< COMPOSITION CIRCUIT BLOCK >

RB001	1-234-371-21	RES, NETWORK 47X4	(1005)	
RB101	1-234-379-21	RES, NETWORK 22KX4	(1005)	
RB102	1-234-383-21	RES, NETWORK 470KX4	(1005)	
RB151	1-234-378-21	RES, NETWORK 10KX4	(1005)	
RB302	1-234-379-21	RES, NETWORK 22KX4	(1005)	
RB351	1-234-377-21	RES, NETWORK 4.7KX4	(1005)	
RB352	1-234-380-21	RES, NETWORK 47KX4	(1005)	
RB402	1-234-374-21	RES, NETWORK 470X4	(1005)	(TRV408E)
RB401	1-234-381-21	RES, NETWORK 100KX4	(1005)	
RB403	1-234-378-21	RES, NETWORK 10KX4	(1005)	
RB404	1-234-376-21	RES, NETWORK 2.2KX4	(1005)	
RB407	1-234-380-21	RES, NETWORK 47KX4	(1005)	
RB408	1-234-381-21	RES, NETWORK 100KX4	(1005)	
RB409	1-234-381-21	RES, NETWORK 100KX4	(1005)	
RB451	1-234-381-21	RES, NETWORK 100KX4	(1005)	

Ref. No.	Part No.	Description		Remarks
RB452	1-234-378-21	RES, NETWORK 10KX4	(1005)	
RB501	1-234-375-21	RES, NETWORK 1KX4	(1005)	
RB502	1-234-383-21	RES, NETWORK 470KX4	(1005)	
RB503	1-234-383-21	RES, NETWORK 470KX4	(1005)	
RB504	1-234-375-21	RES, NETWORK 1KX4	(1005)	
RB505	1-234-380-21	RES, NETWORK 47KX4	(1005)	
RB507	1-234-376-21	RES, NETWORK 2.2KX4	(1005)	
RB508	1-234-384-11	RES, NETWORK 1MX4	(1005)	
RB509	1-234-382-21	RES, NETWORK 220KX4	(1005)	
RB510	1-234-375-21	RES, NETWORK 1KX4	(1005)	
RB511	1-234-383-21	RES, NETWORK 470KX4	(1005)	
RB513	1-234-376-21	RES, NETWORK 2.2KX4	(1005)	
RB514	1-234-381-21	RES, NETWORK 100KX4	(1005)	
RB704	1-234-400-21	CONDUCTOR, NETWORK	(2010)	
RB705	1-234-369-21	RES, NETWORK 10X4	(1005)	
RB901	1-234-379-21	RES, NETWORK 22KX4	(1005)	(TRV408E)
RB902	1-234-379-21	RES, NETWORK 22KX4	(1005)	(TRV408E)
RB2301	1-234-376-21	RES, NETWORK 2.2KX4	(1005)	
RB2302	1-234-376-21	RES, NETWORK 2.2KX4	(1005)	
RB2303	1-234-723-11	RES, NETWORK 75X4	(1005)	

< TRANSFORMER >

T001	1-435-252-21	TRANSFORMER, DC-DC CONVERTER

< VARISTOR >

VDR701	1-803-974-21	VARISTOR, CHIP
VDR704	1-803-974-21	VARISTOR, CHIP
VDR706	1-803-974-21	VARISTOR, CHIP
VDR707	1-803-974-21	VARISTOR, CHIP

< VIBRATOR >

X271	1-760-321-11	VIBRATOR, CRYSTAL (28.375MHz)
X401	1-760-655-41	VIBRATOR, CRYSTAL (20MHz)
X501	1-795-375-11	VIBRATOR, CERAMIC (20MHz)
X502	1-760-458-21	VIBRATOR, CRYSTAL (32.768KHZ)

	A-7078-025-A	VF-150 (BW) BOARD, COMPLETE
		**********

< CAPACITOR >

C2001	1-127-760-11	CERAMIC CHIP	4.7uF	10%	6.3V
C2003	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2004	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2005	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2006	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2008	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2009	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C2010	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C2011	1-107-687-11	TANTAL. CHIP	3.3uF	20%	20V
C2012	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C2013	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C2014	1-164-876-11	CERAMIC CHIP	120PF	5%	50V
C2015	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2016	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2017	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C2018	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C2019	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V
C2020	1-164-505-11	CERAMIC CHIP	2.2uF		16V

Ref. No.	Part No.	Description			Remarks
		< CONNECTOR >			
CN2001	1-764-526-11	CONNECTOR, FFC/FPC 18P			
CN2002	1-750-630-11	CONNECTOR, FFC/FPC 16P			
		< DIODE >			
D2001	8-719-084-47	DIODE 1SV290(TPL3)			
		< FERRITE BEAD >			
FB2001	1-414-760-21	FERRITE	0UH		
FB2002	1-414-760-21	FERRITE	0UH		
		< IC >			
IC2001	8-759-660-93	IC RB5P004AM1			
IC2002	8-752-405-57	IC CXD3501AR-T4			
		< COIL >			
L2001	1-469-525-91	INDUCTOR	10uH		
L2002	1-412-949-21	INDUCTOR	6.8uH		
		< RESISTOR >			
R2001	1-218-985-11	RES-CHIP	470K	5%	1/16W
R2002	1-208-931-11	METAL CHIP	68K	0.5%	1/16W
R2003	1-218-990-11	SHORT	0		
R2004	1-218-967-11	RES-CHIP	15K	5%	1/16W
R2005	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R2006	1-218-973-11	RES-CHIP	47K	5%	1/16W
R2007	1-218-975-11	RES-CHIP	68K	5%	1/16W
R2008	1-218-969-11	RES-CHIP	22K	5%	1/16W
R2009	1-218-975-11	RES-CHIP	68K	5%	1/16W
R2010	1-218-989-11	RES-CHIP	1M	5%	1/16W
R2011	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2012	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R2013	1-218-989-11	METAL CHIP	1M	0.5%	1/16W
R2014	1-218-977-11	RES-CHIP	100K	5%	1/16W
R2015	1-218-990-11	SHORT	0		
		< COMPOSITION CIRCUIT BLOCK >			
RB2001	1-234-372-21	RES, NETWORK 100X4		(1005)	
RB2002	1-234-381-21	RES, NETWORK 100KX4		(1005)	
RB2003	1-234-400-21	CONDUCTOR, NETWORK		(2010)	

ACCESSORIES

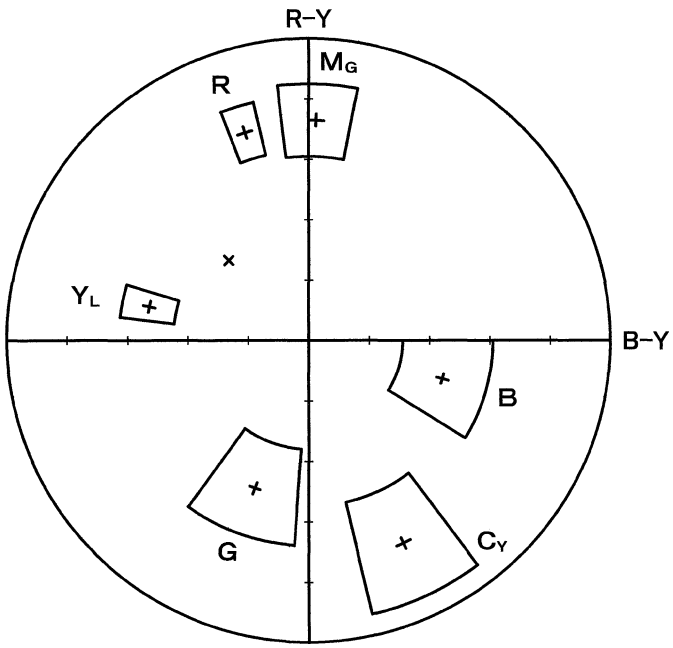
****

	1-467-574-21	REMOTE COMMANDER (RMT-708) (TRV107E/TRV208E/TRV408E)
⚠	1-475-599-11	ADAPTOR, AC (AC-L10A) (TRV107E:AUS,E,HK,JE/TRV108E/TRV208E/TRV408E)
⚠	1-475-599-81	ADAPTOR, AC (AC-L10C) (TRV107E:CH)
⚠	1-569-007-11	ADAPTOR, CONVERSION 2P (TRV107E:JE/TRV408E:JE)
⚠	1-569-008-21	ADAPTOR, CONVERSION 2P (TRV107E:E,HK/TRV408E:E,HK)
	1-573-291-11	ADAPTOR, CONVERSION 21P (TRV108E/TRV208E/TRV408E:AEP1,AEP2,EE,NE,RU,UK)
⚠	1-690-827-11	CORD SET, POWER (TRV108E/TRV208E/TRV408E:AEP1,AEP2,EE,NE,RU)
⚠	1-696-819-21	CORD, POWER (TRV107E:AUS/TRV408E:AUS)
⚠	1-769-608-11	CORD, POWER (TRV107E:E/TRV408E:E)
⚠	1-775-843-52	CORD, POWER (WITH FILTER) (TRV108E:UK/TRV208E:UK/TRV408E:UK)
⚠	1-782-476-11	CORD, POWER (TRV107E:CH)
⚠	1-783-374-11	CORD, POWER (TRV107E:HK/TRV408E:HK)
	1-783-738-11	CORD, CONNECTION (AV CABLE) (1.5m)
⚠	1-790-732-11	CORD, POWER (TRV107E:JE/TRV408E:JE)
	3-072-316-11	OPERATING, INSTRUCTIONS (ARABIC/PERSIAN) (TRV107E:E/TRV408E:E)
	3-072-316-21	OPERATING, INSTRUCTIONS (SIMPLIFIED CHINESE) (TRV107E:CH,E,JE/TRV408E:E,JE)
	3-072-316-31	OPERATING, INSTRUCTIONS (TRADITIONAL CHINESE) (TRV107E:HK/TRV408E:HK)
	3-072-318-11	OPERATING, INSTRUCTIONS (ENGLISH/RUSSIAN) (TRV107E/TRV108E:EE,NE,RU,UK/TRV208E:EE,NE,RU,UK/TRV408E:AUS,EE,NE,RU,E,HK,JE,UK)
	3-072-318-21	OPERATING, INSTRUCTIONS (FRENCH/GERMAN) (TRV107E:E,JE/TRV108E:AEP2/TRV208E:AEP2/TRV408E:AEP2,E,JE)
	3-072-318-31	OPERATING, INSTRUCTIONS(ENGLISH/DUTCH) (TRV108E:AEP2/TRV208E:AEP2/TRV408E:AEP2)
	3-072-318-41	OPERATING, INSTRUCTIONS (SPANISH/PORTUGUESE) (TRV108E:AEP1/TRV208E:AEP1/TRV408E:AEP1)
	3-072-318-51	OPERATING, INSTRUCTIONS (ITALIAN/GREEK) (TRV108E:AEP1/TRV208E:AEP1/TRV408E:AEP1)
	3-072-318-61	OPERATING, INSTRUCTIONS (ENGLISH/SWEDISH) (TRV108E:NE/TRV208E:NE/TRV408E:NE)
	3-072-318-71	OPERATING, INSTRUCTIONS (FINNISH/DANISH) (TRV108E:NE/TRV208E:NE/TRV408E:NE)
	3-072-318-81	OPERATING, INSTRUCTIONS (POLISH/CZECH) (TRV108E:EE/TRV208E:EE/TRV408E:EE)
	3-072-318-91	OPERATING, INSTRUCTIONS (SLOVAKIAN/HUNGARIAN) (TRV108E:EE/TRV208E:EE/TRV408E:EE)
	3-958-131-01	LID, BATTERY CASE (FOR RTM-708) (TRV107E/TRV208E/TRV408E)
	3-987-015-01	BELT (S), SHOULDER
	X-3949-376-1	CAP (N) ASSY, LENS
		NP-FM30 BATTERY PACK (NOT SUPPLIED)

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

〈FOR CAMERA COLOR REPRODUCTION ADJUSTMENT〉

Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.



9-929-927-11

Sony EMCS Co.

2002G1600-1
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Revision History

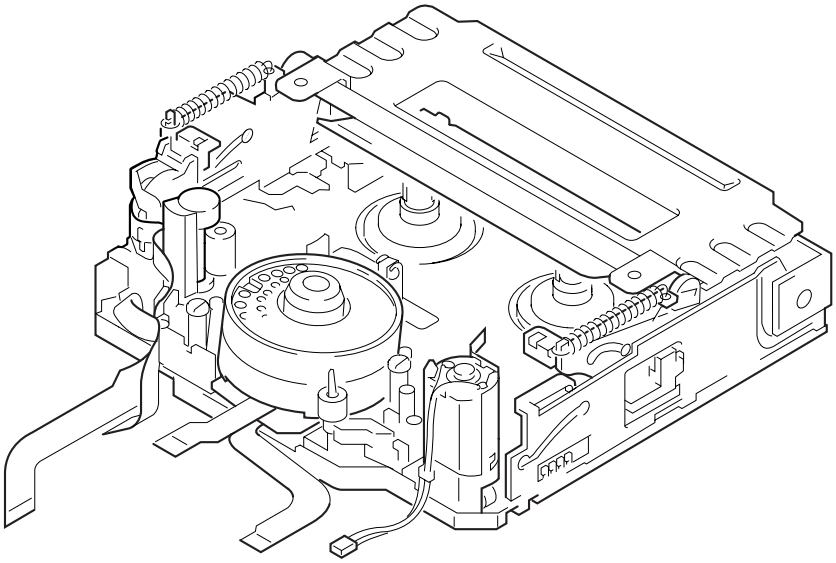
Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2001.12	Official Release	—	—
1.1	2002.07	Correction-2	Correct of jig S.M. correction: Page 2-2, 2-3, 2-4, 2-5, 2-6, 2-10, 2-11, 5-4, 5-5, 5-6, 5-21, 5-24, 5-28, 5-29, 5-30, 5-31, 5-40	Yes

8mm Video MECHANICAL ADJUSTMENT MANUAL IX

Ver 1.0 2000. 12

M2000 MECHANISM

Please use this manual with the service manual of the respective models.



Digital 8 MECHANISM DECK

SONY

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1. Preparations for Check, Adjustment and Replacement of Mechanism Block

Before Replacement, Check or Adjustment

- Refer to the "DISASSEMBLY" section of the SERVICE MANUAL of the respective models for details of removing cabinets and printed wiring boards.
- When checking a mechanism ir making any adjustment to the mechanism or replacing mechanical parts, be sure to use the Mode Selector II and select the appropriate status of the mechanical deck such that the mechanical status is suitable for the desired work. Refer to section "1-2. Mode Selector II Operating Procedure" for details on how to enter the mode shown in a rectangle ____ mode in the sequent sections of this manual.

* Assemble and adjust the parts in the USE mode if any mode is not specified in this manual.

1-1. Service Jigs and Tools

Ref. No.	Name		Part code	Jig inscription	Used for
J-1	Cleaning fluid		Y-2031-001-0		
J-2	Wiping cloth		7-741-900-53		
J-3	Super-fine applicator (made by Nippon Applicator (P752D))				
J-4	Head eraser		commercially available		Tape path
J-5	Mirror (small oval type)		J-6080-840-A	GD-2038	Tape path
J-6	Alignment tape	NTSC : WR5-1NP	8-967-995-02		For tracking adjustment
		PAL : WR5-1CP	8-967-995-07		
J-7	FWD/RVS take-up torque cassette		J-6080-824-A	GD-2086	
J-8	Tape path screwdriver		J-6082-026-A		For tape guide adjustment
J-9	Adjustment remote commander (RM-95 upgrated)		J-6082-053-B		Tape path (for setting the path mode)(Note)
J-10	MD process table		J-6082-166-A		
J-11	Floil grease		7-662-001-39		
J-12	Torque screwdriver		J-9049-330-A		
J-13	Mode Selector II		J-6082-282-B		
J-14	Mode Selector II conversion board		J-6082-516-A		
J-15	Mode Selector II ROM, Ver 1.6		J-6082-314-E		
J-16	Thickness gauge		9-911-053-00		For capstan azimuth adjustment, LS cam plate position adjustment

Other required equipment:

- Oscilloscope
- Analog tester (20 kΩ)

Note: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

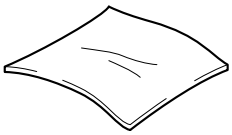
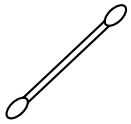
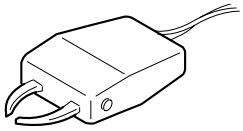
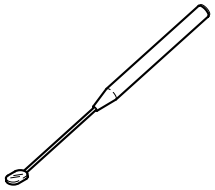
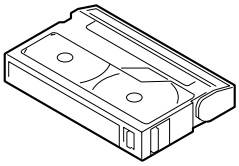
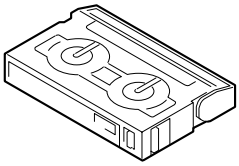
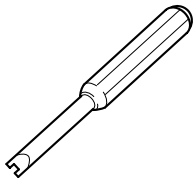
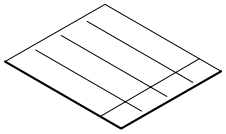
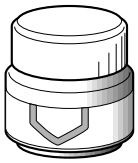
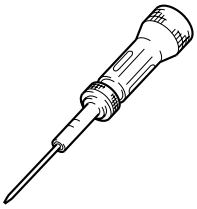
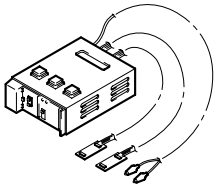
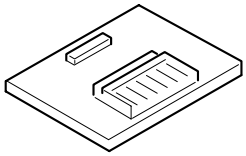
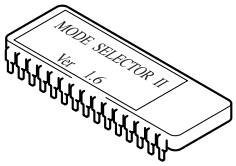
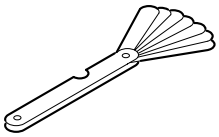
J-1	***J-2*** 	***J-3*** 	***J-4*** 	***J-5*** 
J-6 	***J-7*** 	***J-8*** 	***J-9***	***J-10*** 
J-11 	***J-12*** 	***J-13*** 	***J-14*** 	***J-15*** 
J-16 				

Fig. 1-1.

1-2. Mode Selector II Operating Procedure

1-2-1. Introduction

The Mode Selector II is a mechanism drive tool that assists maintenance work of the various mechanism decks. It has the following functions.

1. Manual Test

In this mode, the motor of the mechanism deck is powered only during the period while the switch is turned on manually. Using the Manual Test, the operator can freely control the motor of the mechanism deck.

2. Step Test

In this mode, the motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information. The Step Test is used to confirm a series of movements of the mechanism deck.

3. Auto Test

The Mode Selector II stores the status transition table in its memory as data indicating the respective modes of the mechanism deck. The status transition table can be used to confirm whether a mechanism deck is operating normally or has abnormality from a series of movements of a mechanism deck. If an abnormal status transition is detected during operation, the "NG" indication appears and the mechanism stops moving.

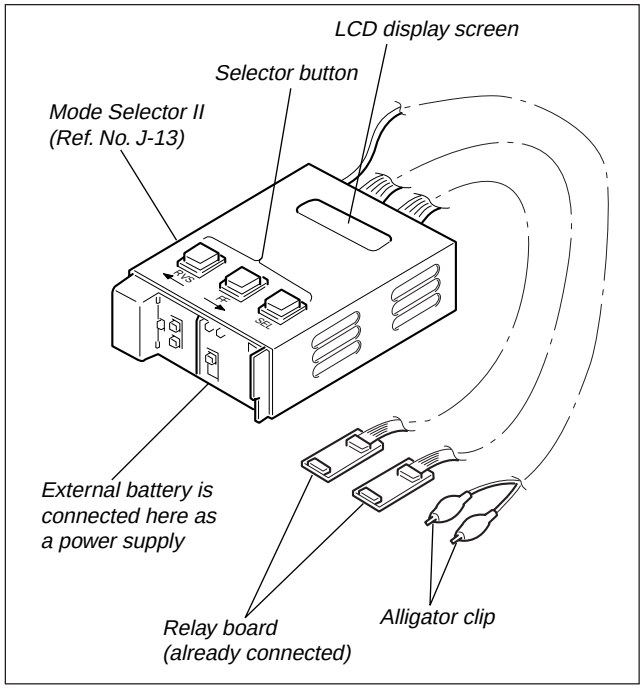


Fig. 1-2.

Mode Selector II (J-6082-282-B) connection diagram

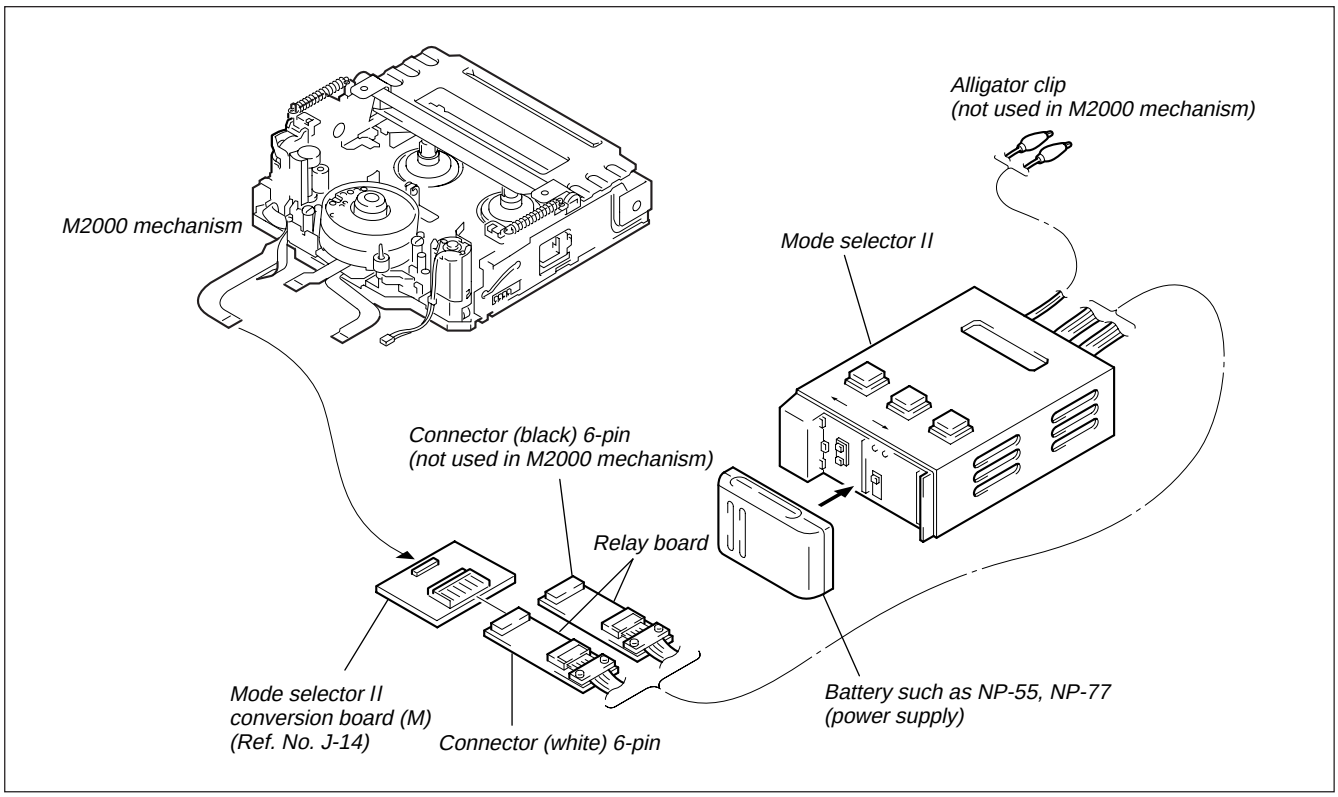
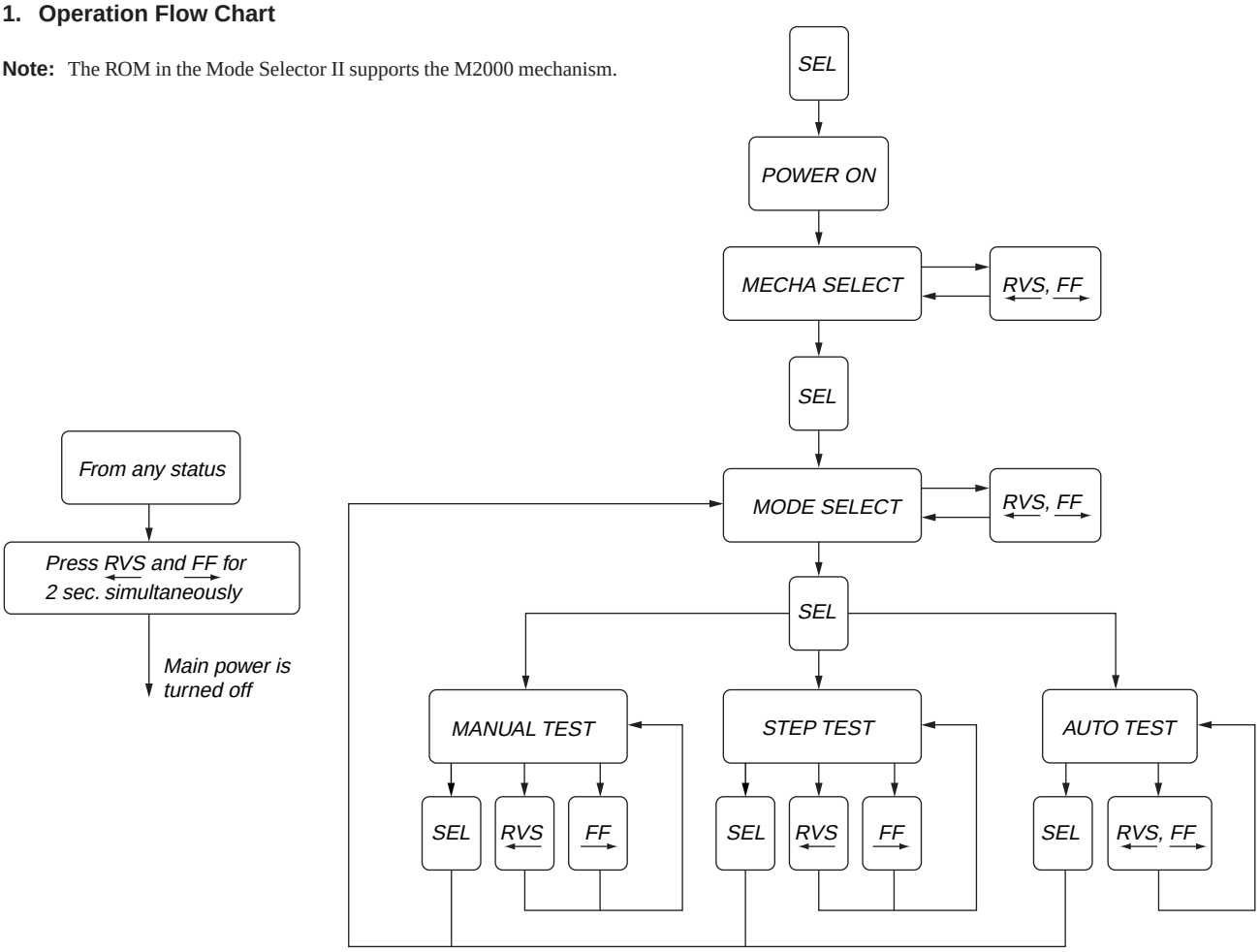


Fig. 1-3.

1-2-2. Operation

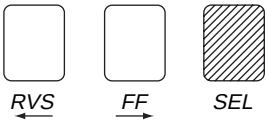
1. Operation Flow Chart

Note: The ROM in the Mode Selector II supports the M2000 mechanism.



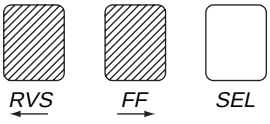
2. Mode Selector II Power On

Turn on the main power of the Mode Selector II as follows.
Press the SEL button.



3. Mode Selector II Power Off

Turn off the main power of the Mode Selector II as follows.
Press the RVS and FF buttons at the same time for 2 seconds or longer while the power is on.



4. Mecha Select

When the main power is turned on, the MECHA SELECT display appears on the LCD screen. Select the desired mechanism name using the RVS and FF buttons. Selection is complete when the SEL button is pressed. (Fig. A shows the B mechanism.)

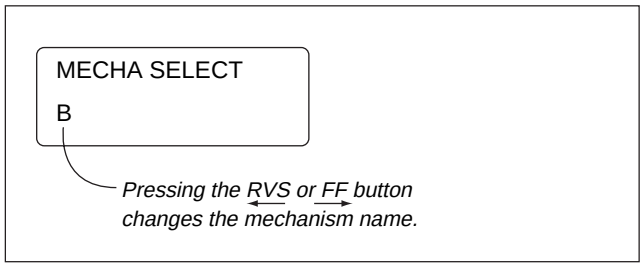


Fig. a

5. Test Type Select

Using the RVS and FF buttons, select a desired test type from the three types of "MANUAL", "STEP" and "AUTO". Selection is complete when the SEL button is pressed.

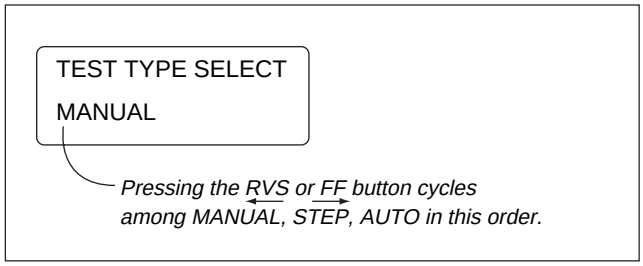


Fig. b

6. Manual Test

In this test, the motor of the mechanism deck is turned on only during the period while the RVS or FF button is pressed manually.

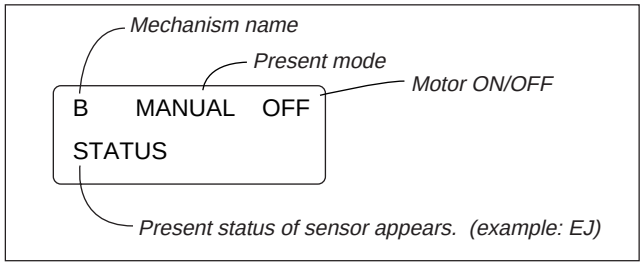


Fig. c

7. Step Test

In this test, the direction of motor movement is determined by the RVS and FF buttons. The motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information.

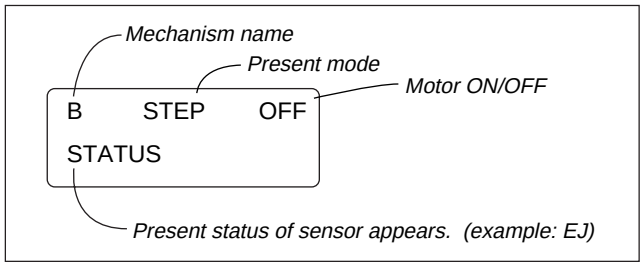


Fig. d

8. Auto Test

In this test, the mechanism deck is tested as to whether it performs a series of movements correctly in accordance with the operation sequence that is memorized earlier for each type of deck, by checking the output signals from sensors with the stored memory. Turning on the RVS or FF button performs the same operation.

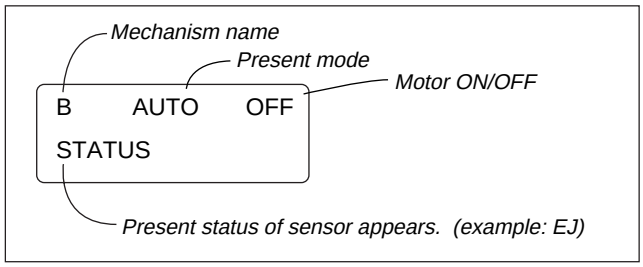


Fig. e

1-2-3. Mechanism Status (Position) Transition Table Using Mode Selector II

After selecting a mechanism deck, select either the MANUAL or STEP test (not AUTO) using the Mode Selector II. The desired mechanism status (position) can be specified by pressing the RVS or FF button. (The selected status appears on STATUS.)
EJ⟷USE⟷LOAD⟷STOP⟷TURN⟷RP⟷REW

Code (MD name)				M2000 Mechanism
A	B	C		
1	0	0	1	EJ
1	1	0	2	USE
0	1	0	3	LOAD
0	1	1	4	STOP
0	0	1	5	TURN
0	0	0	6	RP
1	0	1	7	REW

[0 is common and short.
1 is common and open.]

1-2-4. Battery Alarm Indication

When the level of the battery used to supply power to this system decreases, this display appears asynchronously. When this happens, all operations are disabled and the battery must be replaced.

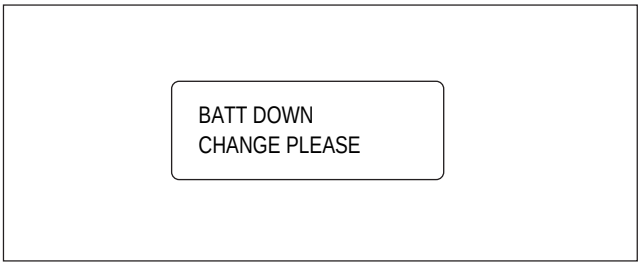


Fig. f

2. Periodic Inspection and Maintenance

- Be sure to perform the following maintenance and inspection so that the machine delivers its full performance and functions, and to protect the machine and tape. Also, perform the following maintenance items after completing the repair work, regardless of the number of hours the machine has been operated by the user.

2-1. Rotary Drum Cleaning

1) Press a wiping cloth (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly against the rotary drum. Rotate the upper drum with a super-fine applicator slowly in the counter-clockwise direction to clean the rotary drum.

Caution: Never rotate the rotary drum by turning on the main power of the motor or rotate it in the clockwise direction. Never move the cloth vertically against the head tip, as this will surely damage the video head; the video head must not be cleaned by any other different methods.

2-2. Tape Path System Cleaning
(Refer to Fig. 2-1.)

1) Set the EJECT state. Clean the tape running path (TG1, 2, 3, 4, 5, 6 and 7, pinch roller and capstan shaft) and lower drum with a super-fine applicator (Ref. No. J-3) moistened with cleaning fluid.

Note 1: Be careful not to allow oil or grease of the various link mechanisms to get on the super-fine applicator (Ref. No. J-3).
Note 2: Once the super-fine applicator has been moistened with alcohol, do not use it to clean other mechanical parts such as the tape guide. However, the pinch roller is cleaned with alcohol.
Note 3: When cleaning the capstan shaft, be carefull not to move the oil seal. If the oil seal is moved, oil will leak.

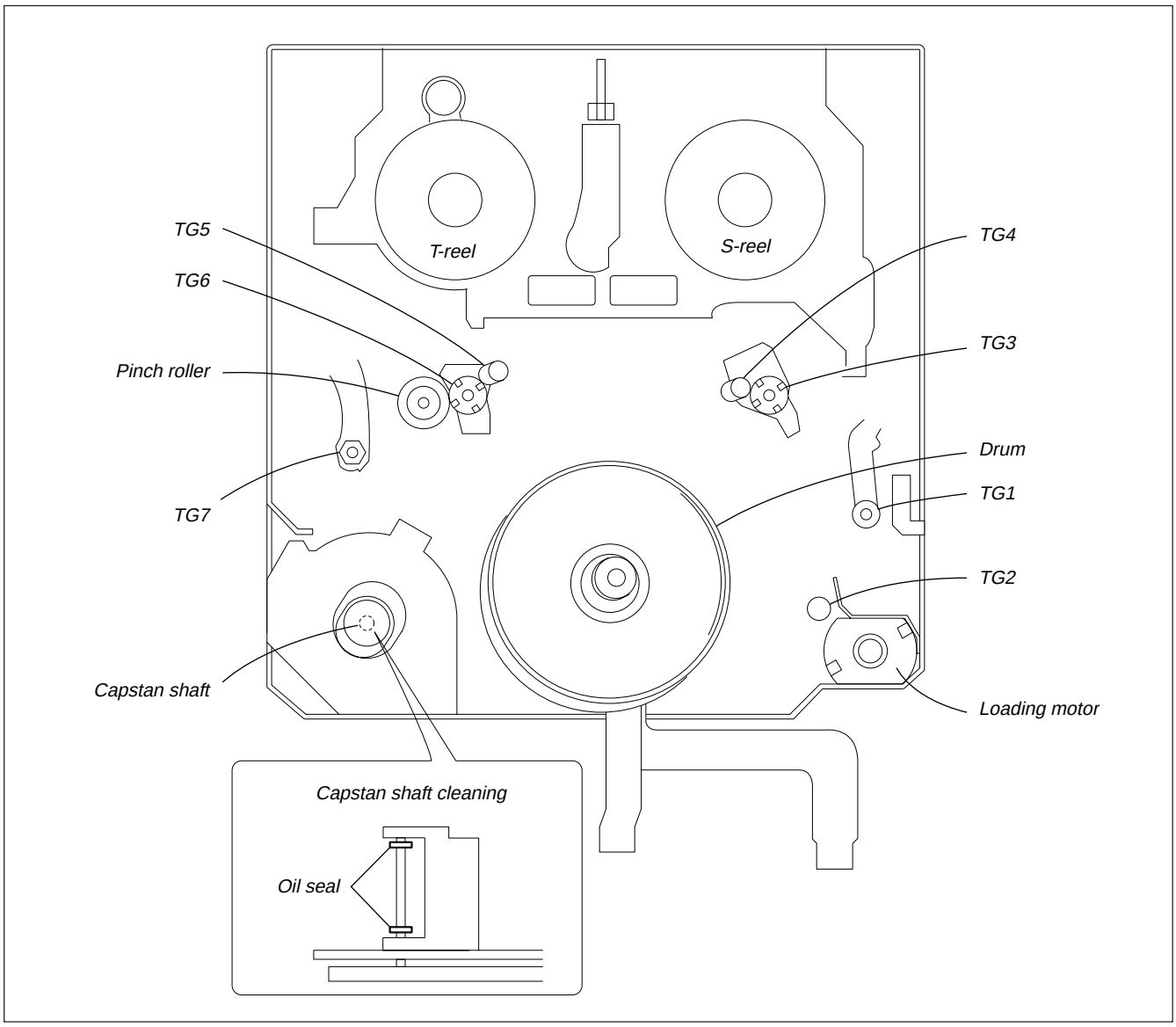


Fig. 2-1

2-3. Periodic Inspection List

Maintenance and inspection item		Operating hours (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Tape running surface cleaning	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
	Rotary drum cleaning and degaussing	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
Drive mechanism	Timing belt	—	☆	—	☆	—	☆	—	☆	—	☆	
Drive mechanism	Capstan shaft	—	☆	—	☆	—	☆	—	☆	—	☆	Never attach oil to the tape running path during periodic inspection.
Drive mechanism	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
Performance check	Back-tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	FWD/RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○: Cleaning, ☆: Check

Note: When the machine is overhauled, replace the parts referring to the above list.

2-4. Appling Oil and Grease

When replacing or assembling the parts, use oil and grease while referring to the following.

On Oil

- Be sure to use the specified grease only. (If oil of different viscosity is used, it can cause various troubles.)
  Oil: Part No. 7-661-018-18
  (Mitsubishi diamond oil hydro fluid NT-68)
- The oil used for bearings must not contain any dust or other materials, otherwise excessive abrasion and seizure of the bearing could occur.
- A drop of oil means the amount of oil as shown in the illustration in the right, which is the amount that is attracted to the top of a rod of 2 mm diameter.

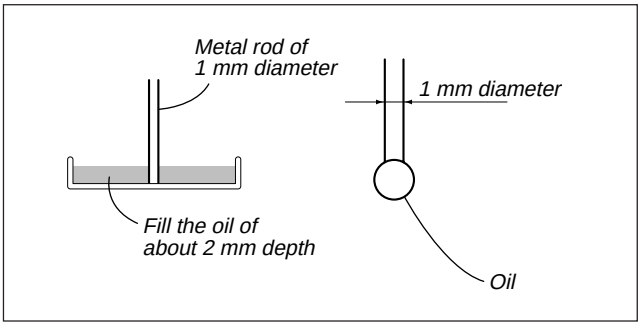


Fig. 2-2

On Grease

- Be sure to use the specified grease only. (If oil of different viscosity is used, it can cause various troubles.)
  Floil grease: Part No. 7-662-001-39
- Be sure to use grease into which dust is not mixed.
- The amount of grease is 1 to 1.5 mm diameter in length.

3. Before Replacement, Check or Adjustment

3-1. Phase Adjustment

The phase adjustment of this mechanism block has been adjusted by using the in-phase markings shown in the following figure. When replacing or assembling the parts, check the phase.

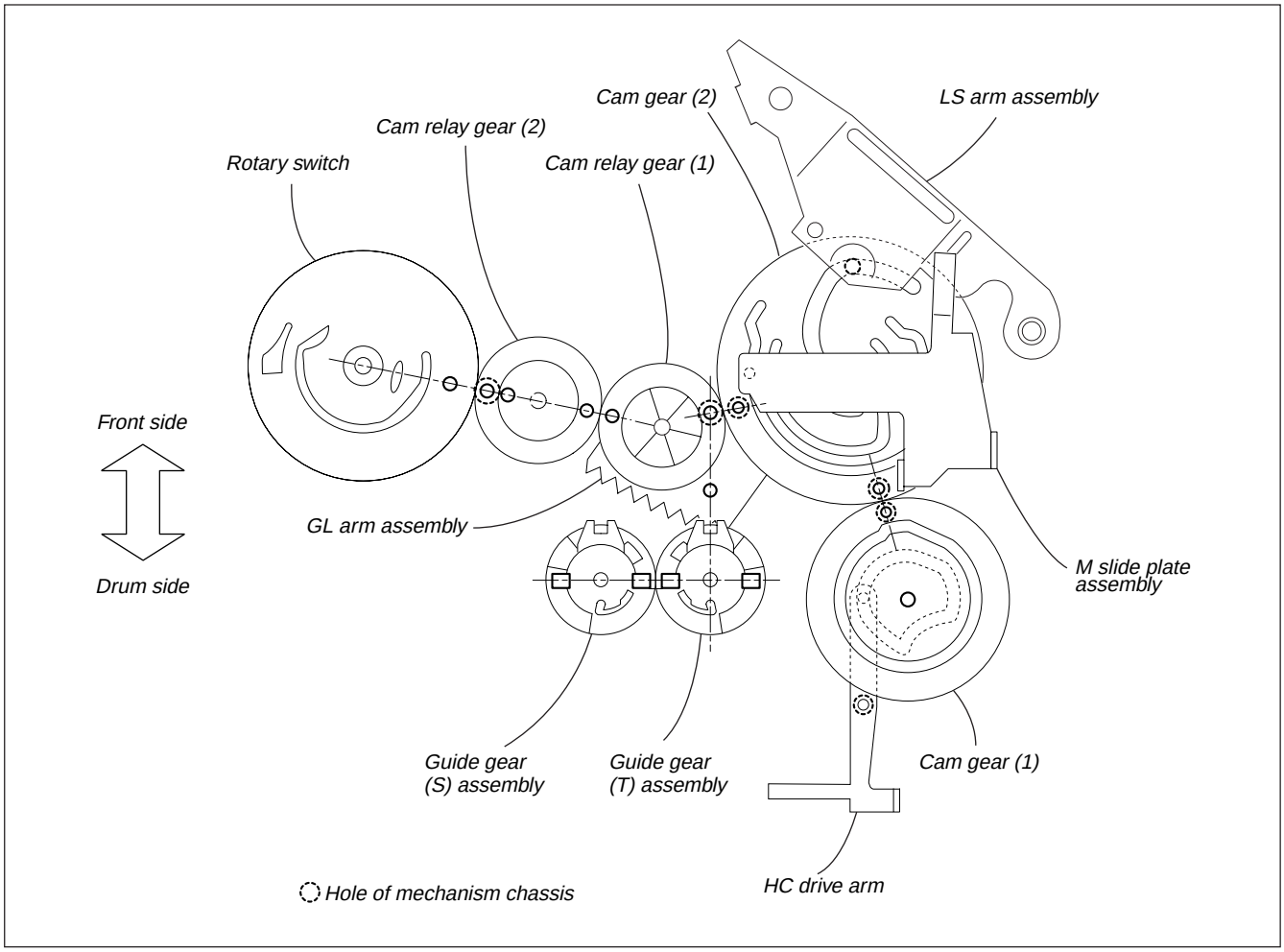


Fig. 3-1.

3-2. Cassette compartment assembly

1. Removal procedure

1) Set the [EJ] mode to move up the cassette compartment assembly ⑩.
2) Remove the capstan flexible board and flexible wiring board (FP-300) ① from the holders Ⓧ, Ⓨ and Ⓩ in the directions of the arrows Ⓐ, Ⓑ and Ⓒ.
3) Push the damper assembly ③ in the directions of the arrows Ⓓ and Ⓔ and remove it from the notch of the LS chassis block assembly.
4) Remove the two screws (camera pan2 main M1.4 × 1.6) ④.
5) With the cassette compartment assembly ⑩ half opened, move the face plate in the direction of the arrow Ⓕ and remove it from the grooves ⑥ and ⑦ on the LS chassis block assembly.
6) Remove the cassette holder (S) ⑧ and cassette holder (T) ⑨ of the cassette compartment assembly ⑩ from the groove on the LS chassis block assembly.

2. Attachment procedure

1) Set the [USE] mode.
2) Insert the cassette holder (S) ⑧ of the cassette compartment assembly ⑩ and cassette holder (T) ⑨ into the grooves on both sides of the LS chassis block assembly.
3) While moving down the cassette compartment assembly ⑩, lift up the face plate in the direction of the arrow Ⓕ and keep this status. Then, insert the face plate in the grooves ⑥ and ⑦ on the LS chassis block assembly.
4) Tighten the two screws (camera pan2 main M1.4×1.6) ④.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
5) Move the damper arm of the damper assembly ③ to the 4 o'clock position and insert the damper assembly into the hole on the LS chassis block assembly and the dowel of the cassette holder (T) ⑨.
6) Align the damper assembly ③ with the notch of the LS chassis block assembly and rotate the damper assembly ③ in the opposite direction to the arrow Ⓔ to fix it.

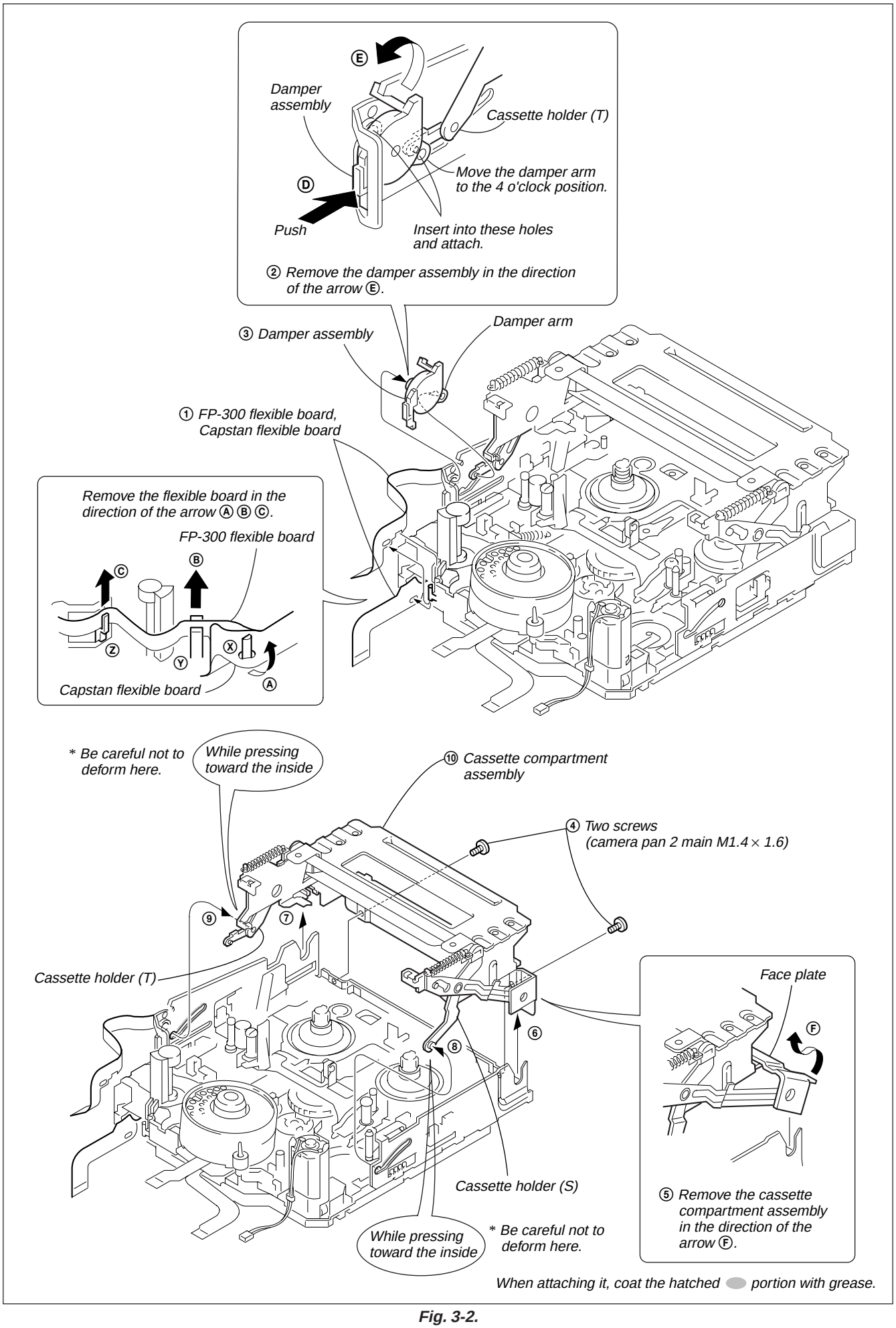

Ⓔ
Damper assembly
Cassette holder (T)
Move the damper arm to the 4 o'clock position.
Ⓓ
Push
Insert into these holes and attach.
② Remove the damper assembly in the direction of the arrow Ⓔ.
③ Damper assembly
Damper arm
① FP-300 flexible board, Capstan flexible board
Remove the flexible board in the direction of the arrow Ⓐ Ⓑ Ⓒ.
FP-300 flexible board
Ⓒ
Ⓑ
Ⓩ
Ⓨ
Ⓧ
Ⓐ
Capstan flexible board
* Be careful not to deform here.
While pressing toward the inside
⑩ Cassette compartment assembly
④ Two screws (camera pan 2 main M1.4 × 1.6)
⑨
⑦
Cassette holder (T)
⑥
⑧
Cassette holder (S)
While pressing toward the inside
* Be careful not to deform here.
Face plate
Ⓕ
⑤ Remove the cassette compartment assembly in the direction of the arrow Ⓕ.
When attaching it, coat the hatched portion with grease.

Fig. 3-2.

4. Check, Adjustment and Replacement

Note: For removal procedure of the cabinets, printed wiring boards and other parts, refer to "DISASSEMBLY" of the Service Manual of the respective models.

4-1. Drum Assembly

1. Removal procedure

1) Remove the three screws (drum fitting M1.4 × 2.5) ① fixing the drum and remove the drum.

2. Attachment procedure

1) Align the two reference holes A and B on the rear of the drum with the reference pins A and B of the drum base assembly.
2) Attach the drum with the three screws (drum fitting M1.4 × 2.5) ① in the order of Ⓐ, Ⓑ and Ⓒ.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
3) Clean the drum while referring to 2-1.
4) Adjust the tape path. (Refer to "4. Tape Path Adjustment".)

Note: Do not touch the outside circumference.

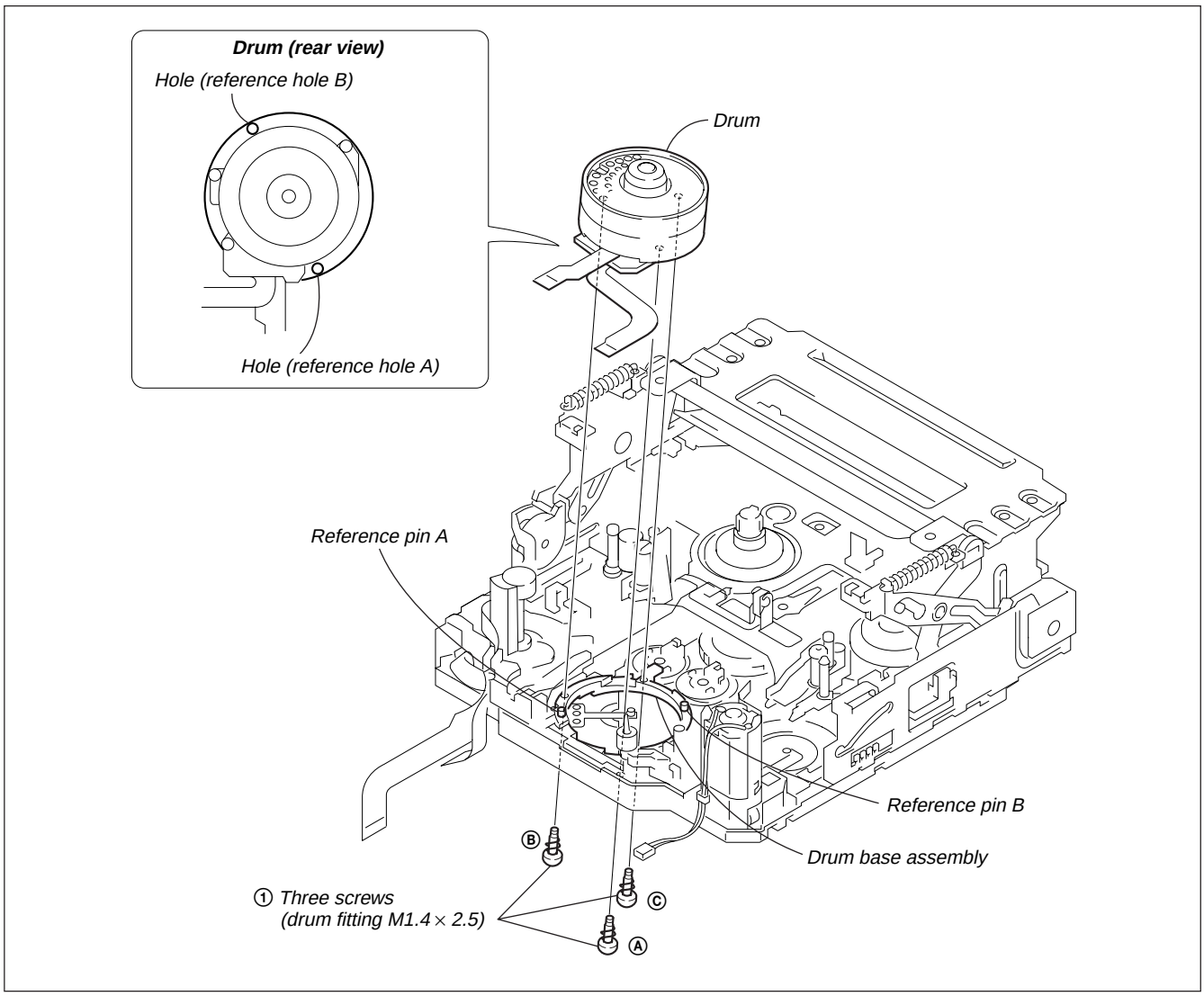


Fig. 4-1.

4-2. HCL Arm Assembly, Loading Motor Assembly

1. Removal procedure

1) Hook the HC arm spring in the direction of the arrow Ⓑ.
2) Remove the HCL arm assembly ② from the loading motor assembly ④.
3) Remove the screw (M1.4 × 2.5) ③.
4) Remove the three claws of the loading motor assembly ④ from the mechanism chassis assembly in the direction of the arrow Ⓐ.

2. Attachment procedure

1) Coat the worm shaft and gear of the loading motor assembly ④ with grease.
2) Insert the three claws of the loading motor assembly ④ into the groove on the mechanism chassis assembly.
3) Attach the screw (M1.4 × 2.5) ③.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
4) Check the position of the HCL arm assembly ② and the HC drive arm. Then attach the HCL arm assembly ② to the loading motor assembly ④.
5) Hook the HC arm spring ① on the notch of the loading motor assembly ④.
6) Clean the drum assembly. (Refer to section 2-1.)

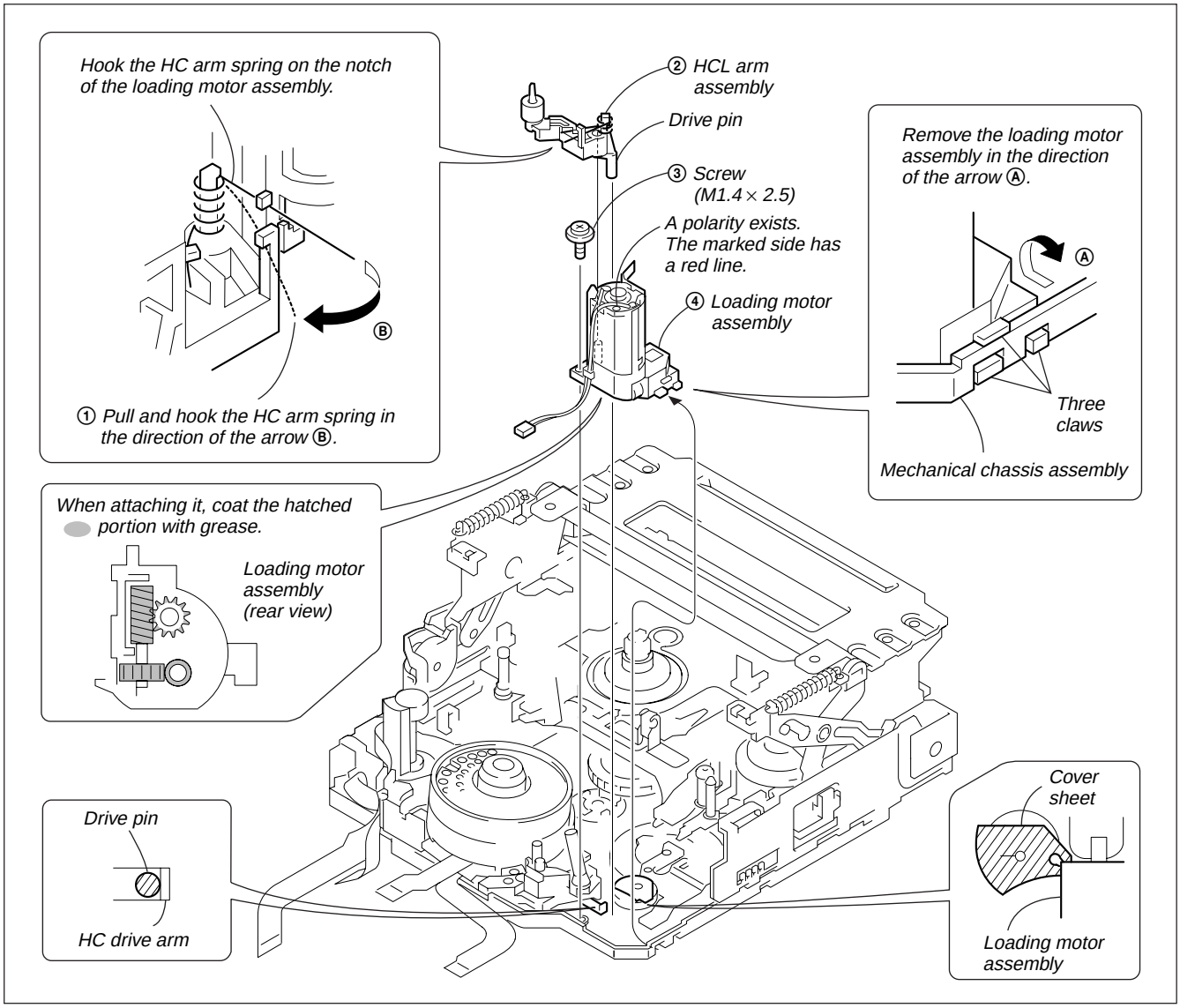

Hook the HC arm spring on the notch of the loading motor assembly.
Ⓑ
① Pull and hook the HC arm spring in the direction of the arrow Ⓑ.
② HCL arm assembly
Drive pin
③ Screw (M1.4 × 2.5)
A polarity exists. The marked side has a red line.
④ Loading motor assembly
Remove the loading motor assembly in the direction of the arrow Ⓐ.
Ⓐ
Three claws
Mechanical chassis assembly
When attaching it, coat the hatched portion with grease.
Loading motor assembly (rear view)
Drive pin
HC drive arm
Cover sheet
Loading motor assembly

Fig. 4-2.

4-3. Drum Base Assembly, Drum Earth

1. Removal procedure

1) Remove the capstan flexible board and flexible wiring board (FP-300) from the holders Ⓧ, Ⓨ and Ⓩ in the direction of the arrow.
2) Remove the drum assembly. (Refer to section 4-1.)
3) Remove the screw (M1.4 × 2.5) ②.
4) Remove the claw Ⓓ of the guide rail T2 ③ from the hole Ⓔ of the drum base assembly in the direction of the arrow Ⓕ.
5) Remove the three screws (M1.4 × 2.5) ④.
6) Remove the drum base assembly ⑤ in the direction of the arrow.
7) Remove the screw (screw assy PW M1.7 × 2.6) ⑥.
8) Remove the drum earth ⑦ and earth spacer ⑧.

2. Attachment procedure

1) Attach the ground spacer ⑧ and drum ground ⑦ with the screw (screw assy PW M1.7 × 2.6) ⑥.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
2) Align the drum base assembly ⑤ with the reference pin and tighten the three screws (M1.4 × 2.5) ④ in the order of Ⓖ, Ⓗ and Ⓘ.
3) Insert the claw Ⓓ of the guide rail T2③ into the hole Ⓔ of the drum base assembly ⑤ and tighten the screw (M1.4 × 2.5) ②.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 kgf•cm)
4) Remove the drum assembly. (Refer to 4-1.)
5) Attach the flexible wiring board (FP-300) ① and capstan flexible board to the drum base assembly.
6) Clean the tape running path. (Refer to 2-2.)

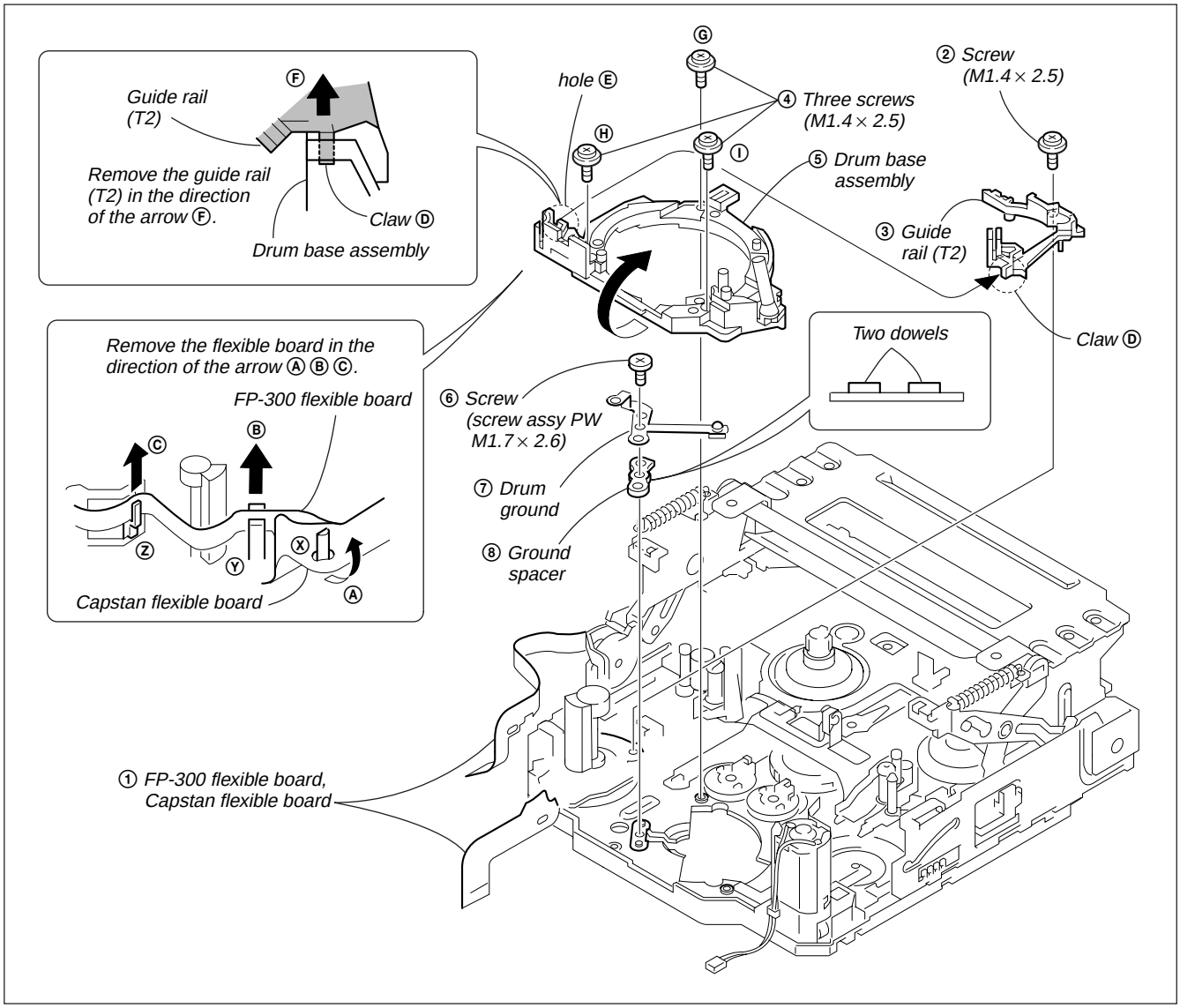


Fig. 4-3.

4-4. Guide Rail T2, Capstan Motor

1. Removal procedure

1) Remove the capstan flexible board and flexible wiring board (FP-300) ① from the holders Ⓧ, Ⓨ and Ⓩ in the directions of the arrows Ⓐ, Ⓑ and Ⓒ.
2) Remove the screw (M1.4 × 2.5) ②.
3) Remove the claw of the guide rail T2 ③ from the hole on the drum base assembly in the direction of the arrow Ⓓ.
4) Remove the six solderings ④.
5) Remove the FP-228 flexible wiring board (2P) (DEW sensor) ⑤.
6) Remove the two screws (camera pan2 main M1.4 × 1.6) ⑥ and the screw (SANG camera pan2 main M1.4 × 4.5) ⑦.
7) Remove the capstan motor ⑧.
8) Remove the capstan spring ⑨ (be careful not to drop the capstan spring) and timing belt ⑩.

2. Attachment procedure

1) Hook the timing belt ⑩ on the gear of the capstan motor ⑧, attach the capstan motor while aligning it with the reference boss of the mechanism chassis assembly.
2) Attach the screw (SANG camera pan2 M1.4 × 4.5) ⑦ and capstan spring ⑨. (temporally attachment)
3) Attach the two screws (camera pan2 M1.4 × 1.6) ⑥.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
4) Attach the six solderings ④ to the FP-228 flexible wiring board ⑤ (2P) (DEW sensor) and the FP-299 flexible wiring board (4P).
5) Insert the guide rail T2 ③ into the hole on the drum base assembly and tighten the screw (M1.4 × 2.5) ②.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
6) Attach the capstan flexible board and the flexible wiring board (FP-300) ① to the holders Ⓧ, Ⓨ and Ⓩ.
7) Adjust the height of the capstan motor using the thickness gauge (Ref. No. J-16). (Refer to 5-3.)

Note: Be careful not to touch the center of the capstan motor ⑩ shaft and the FP-228 flexible wiring board (DEW sensor) with soldering iron or other tool.

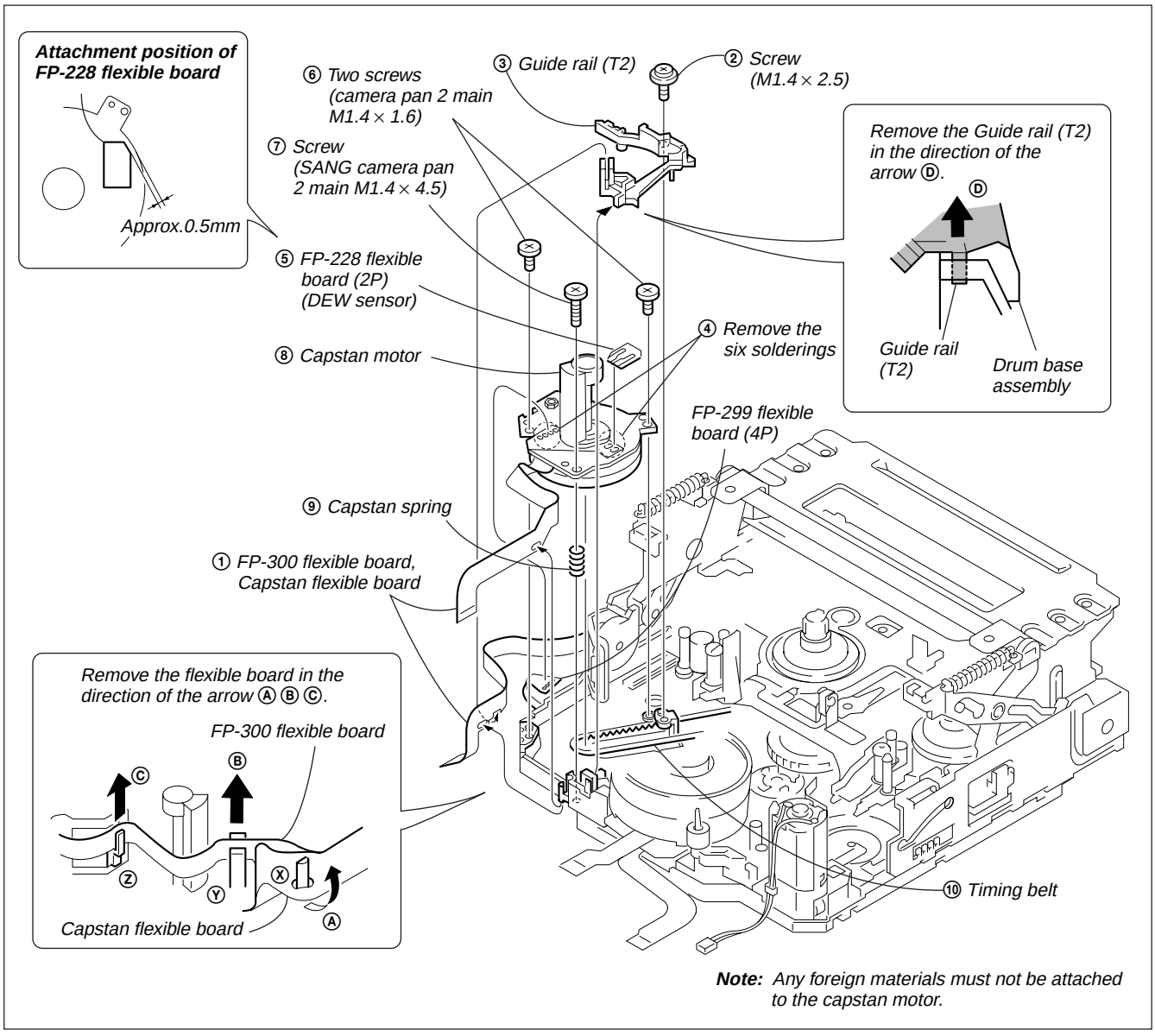

Attachment position of FP-228 flexible board
Approx.0.5mm
⑥ Two screws (camera pan 2 main M1.4 × 1.6)
③ Guide rail (T2)
② Screw (M1.4 × 2.5)
⑦ Screw (SANG camera pan 2 main M1.4 × 4.5)
Remove the Guide rail (T2) in the direction of the arrow Ⓓ.
Ⓓ
Guide rail (T2)
Drum base assembly
⑤ FP-228 flexible board (2P) (DEW sensor)
④ Remove the six solderings
⑧ Capstan motor
FP-299 flexible board (4P)
⑨ Capstan spring
① FP-300 flexible board, Capstan flexible board
Remove the flexible board in the direction of the arrow Ⓐ Ⓑ Ⓒ.
FP-300 flexible board
Ⓒ
Ⓑ
Ⓩ
Ⓨ
Ⓧ
Ⓐ
Capstan flexible board
⑩ Timing belt
Note: Any foreign materials must not be attached to the capstan motor.

Fig. 4-4.

4-5. Blind Plate, Lock Guide

1. Removal procedure

1) Remove the diode D001 (tape LED) ① from the notch of the plate ④.
2) Remove the flexible wiring board ② (FP-301) from T-shaped portion of the blind plate ④ in the direction of the arrow Ⓐ.
3) Remove the screw (camera pan2 main M1.4 × 1.6) ③.
4) Release the hook on the notches Ⓖ, Ⓓ, Ⓔ and Ⓕ of the blind plate ④ in the direction of the arrow Ⓑ.
5) Remove the reel release lever ⑤ in the direction of the arrow Ⓒ.

2. Attachment procedure

1) Attach the reel release lever ⑤ to the blind plate ④.
2) Hang the notches Ⓖ, Ⓓ, Ⓔ and Ⓕ of the blind plate ④ on the hook.
3) Attach the screw (camera pan2 main M1.4 × 1.6) ③.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
4) Attach the flexible wiring board (FP-301) ② to the T-shaped portion of the blind plate ④.
5) Attach the diode (tape LED) ① to the notch of the blind plate ④.

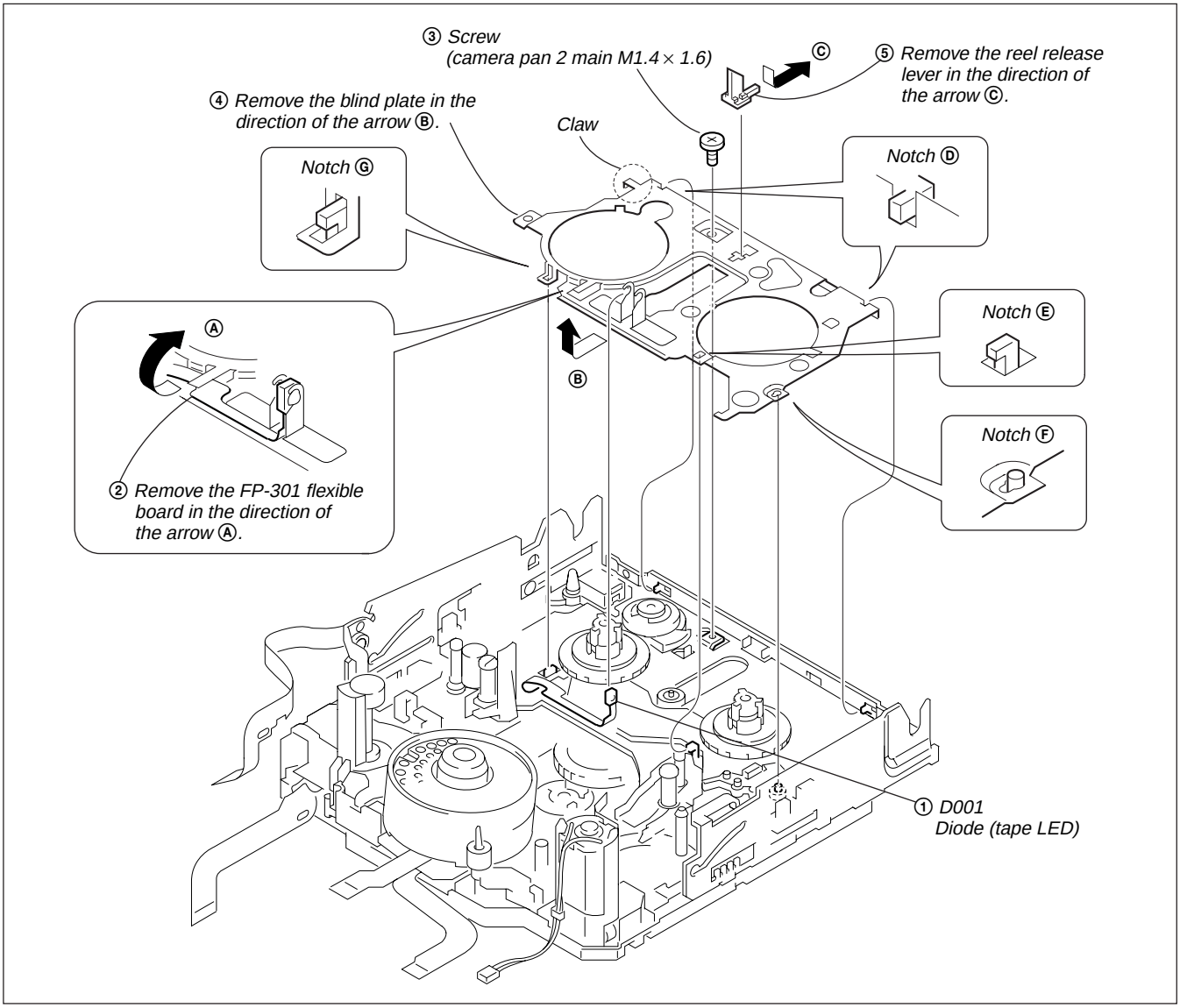

③ Screw
(camera pan 2 main M1.4 × 1.6)
Ⓒ
⑤ Remove the reel release lever in the direction of the arrow Ⓒ.
④ Remove the blind plate in the direction of the arrow Ⓑ.
Claw
Notch Ⓖ
Notch Ⓓ
Notch Ⓔ
Notch Ⓕ
Ⓐ
Ⓑ
② Remove the FP-301 flexible board in the direction of the arrow Ⓐ.
① D001
Diode (tape LED)

Fig. 4-5.

4-6. Reel Table (T) Assembly, T Soft Assembly

1. Removal procedure

1) Remove the blind plate. (Refer to 4-5.)
2) Open the claw of the reel table T assembly ① in the directions of the arrows Ⓑ and Ⓒ and remove the reel table T assembly.
3) Remove the T soft assembly ② in the direction of the arrow Ⓐ.
4) Remove the T ratchet spring ③.
5) Remove the T ratchet arm ④ in the direction of the arrow Ⓓ.

2. Attachment procedure

1) Insert the T ratchet arm ④ into the groove on the LS chassis block assembly to attach it.
2) Attach the T ratchet spring ③ to the notch of the T ratchet arm ④ and LS chassis block assembly.
3) Insert the T soft assembly into the groove on the LS chassis block assembly.
4) Check the location of the reel table T assembly and attach the LS chassis block assembly to the shaft.
5) Attach the blind plate. (Refer to 4-5.)

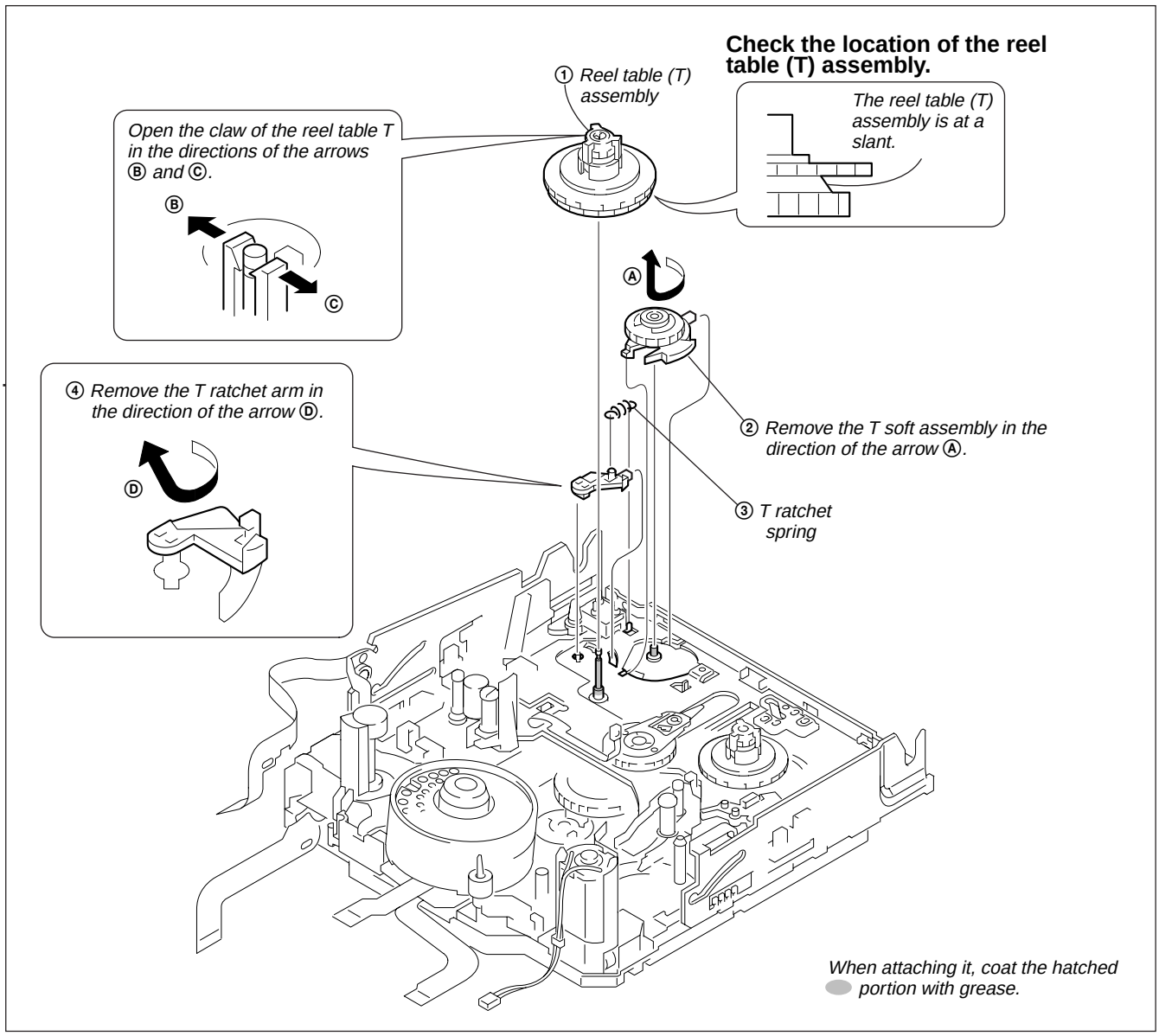

Check the location of the reel table (T) assembly.
① Reel table (T) assembly
The reel table (T) assembly is at a slant.
Open the claw of the reel table T in the directions of the arrows Ⓑ and Ⓒ.
Ⓑ
Ⓒ
Ⓐ
④ Remove the T ratchet arm in the direction of the arrow Ⓓ.
Ⓓ
② Remove the T soft assembly in the direction of the arrow Ⓐ.
③ T ratchet spring
When attaching it, coat the hatched portion with grease.

Fig. 4-6.

4-7. S Ratchet RE Plate, Cassette Guide S

1. Removal procedure

1) Remove the blind plate. (Refer to 4-5.)
2) Remove the RE return plate spring ①.
3) Remove the S ratchet spring ②.
4) Remove the S ratchet arm ③ in the direction of the arrow Ⓐ.
   Note: Do not reuse the S ratchet arm.
5) Remove the S ratchet RE plate.
6) Remove the screw (camera tapping M1.4 × 2)⑤.
7) Remove the cassette guide S ⑥ in the direction of the arrow Ⓑ.

2. Attachment procedure

1) Attach the cassette guide S ⑥ to the notch of the LS chassis block assembly with the screw (camera tapping M1.4 × 2).
2) Attach the S ratchet RE plate ④ to the shaft of the LS chassis block assembly.
3) Attach the S ratchet arm ③ to the shaft of the LS chassis block assembly. At this time, the dowel of the S ratchet RE plate ④ must be inserted into the U-shaped notch of the S ratchet arm ③.
4) Hook the S ratchet spring ② on the notch of the S ratchet arm and attach it to the notch of the LS chassis block assembly.
5) Attach the RE return plate spring ① to the notch of the LS chassis block assembly.
6) Attach the blind plate. (Refer to 4-5.)

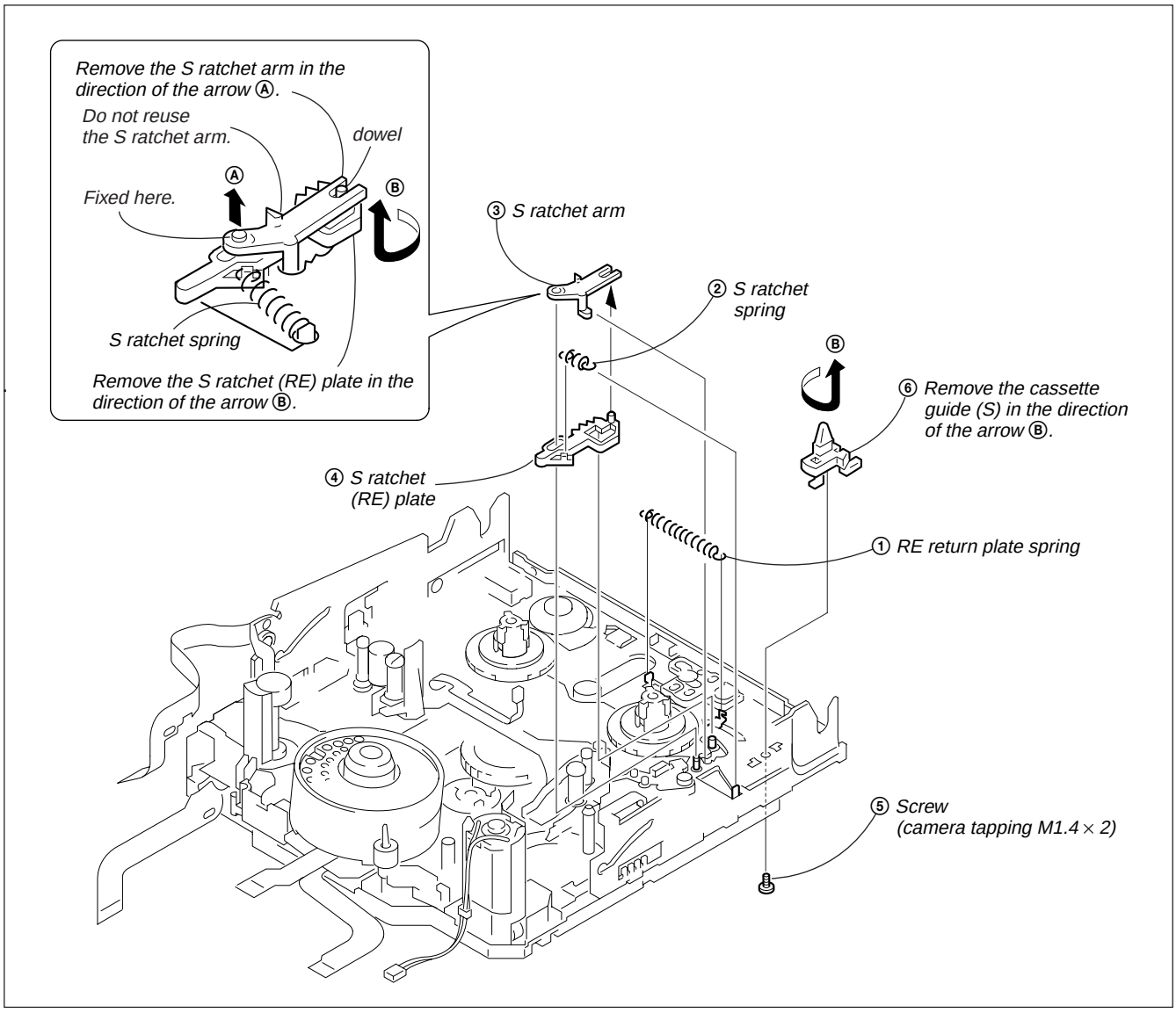

Remove the S ratchet arm in the direction of the arrow Ⓐ.
Do not reuse the S ratchet arm.
dowel
Fixed here.
Ⓐ
Ⓑ
S ratchet spring
Remove the S ratchet (RE) plate in the direction of the arrow Ⓑ.
③ S ratchet arm
② S ratchet spring
Ⓑ
⑥ Remove the cassette guide (S) in the direction of the arrow Ⓑ.
④ S ratchet (RE) plate
① RE return plate spring
⑤ Screw (camera tapping M1.4 × 2)

Fig. 4-7.

4-8. R Drive Gear Assembly, LS Cam Plate

1. Removal procedure

1) Remove the blind plate. (Refer to 4-5.)
2) Remove the lumiler cut washer (0.98 × 3 × 0.13) ①.
3) Remove the R drive gear assembly ②.
4) Remove the HLC cut (1.8 × 4 × 0.5) ③ and the two screws (precision type3 +P1.7 × 1.8) ④.
5) Remove the LS cam plate ⑤.

2. Attachment procedure

1) Attach the R drive gear assembly ② with the lumiler cut washer (0.98 × 3 × 0.13) ①.
2) Align the LS cam plate ⑤ with the two dowels of the LS chassis block assembly, temporarily fix the LS cam plate ⑤ with the two screws (precision type3 +P1.7 × 1.8), then attach it with the HLC cut (1.8 × 4 × 0.5) ③.
3) Adjust the position of the LS cam plate. (Refer to 4-9.)

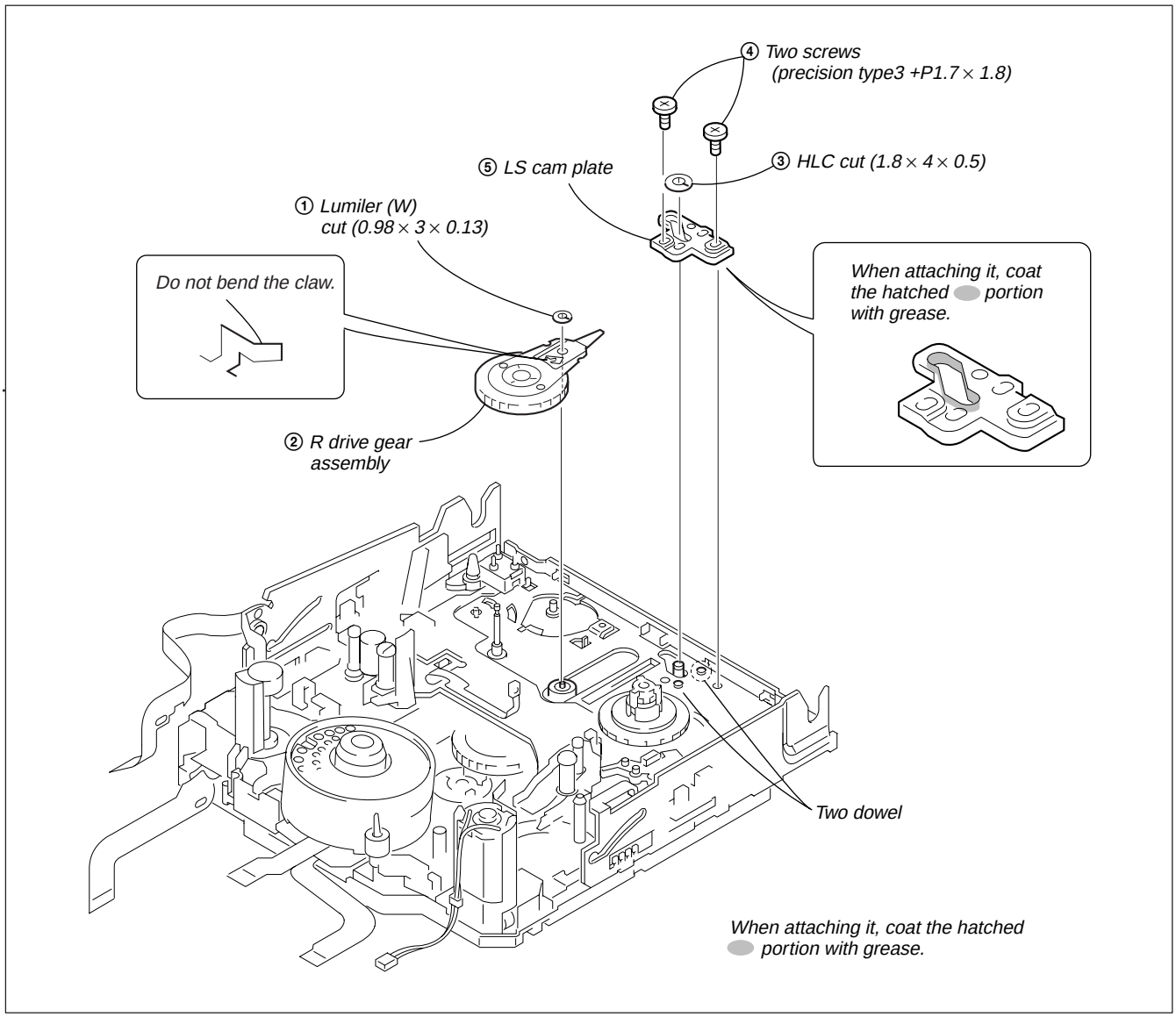

④ Two screws
(precision type3 +P1.7 × 1.8)
⑤ LS cam plate
③ HLC cut (1.8 × 4 × 0.5)
① Lumiler (W)
cut (0.98 × 3 × 0.13)
Do not bend the claw.
When attaching it, coat the hatched portion with grease.
② R drive gear assembly
Two dowel
When attaching it, coat the hatched portion with grease.

Fig. 4-8.

4-9. LS Cam Plate Position Adjustment

1. Adjustment Procedure

1) Perform loading of the LS chassis block assembly ① until the tip of the guide base (S) assembly reaches the drum base assembly.
2) Loosen the two screws (precision type3 +P1.7 × 1.8) ② of the LS cam plate and slide the LS chassis block assembly to the drum side so as to remove play.
3) Insert the thickness gauge 0.6 mm (Ref. No. J-16) between the LS cam plate and the LS chassis block assembly. Push the LS cam plate in the direction opposite to the drum to remove play.
4) Fix the two screws (precision type3 +P1.7 × 1.8) ②.
Tightening torque: 0.108 ± 0.01 N•m (1.1 kgf•cm)

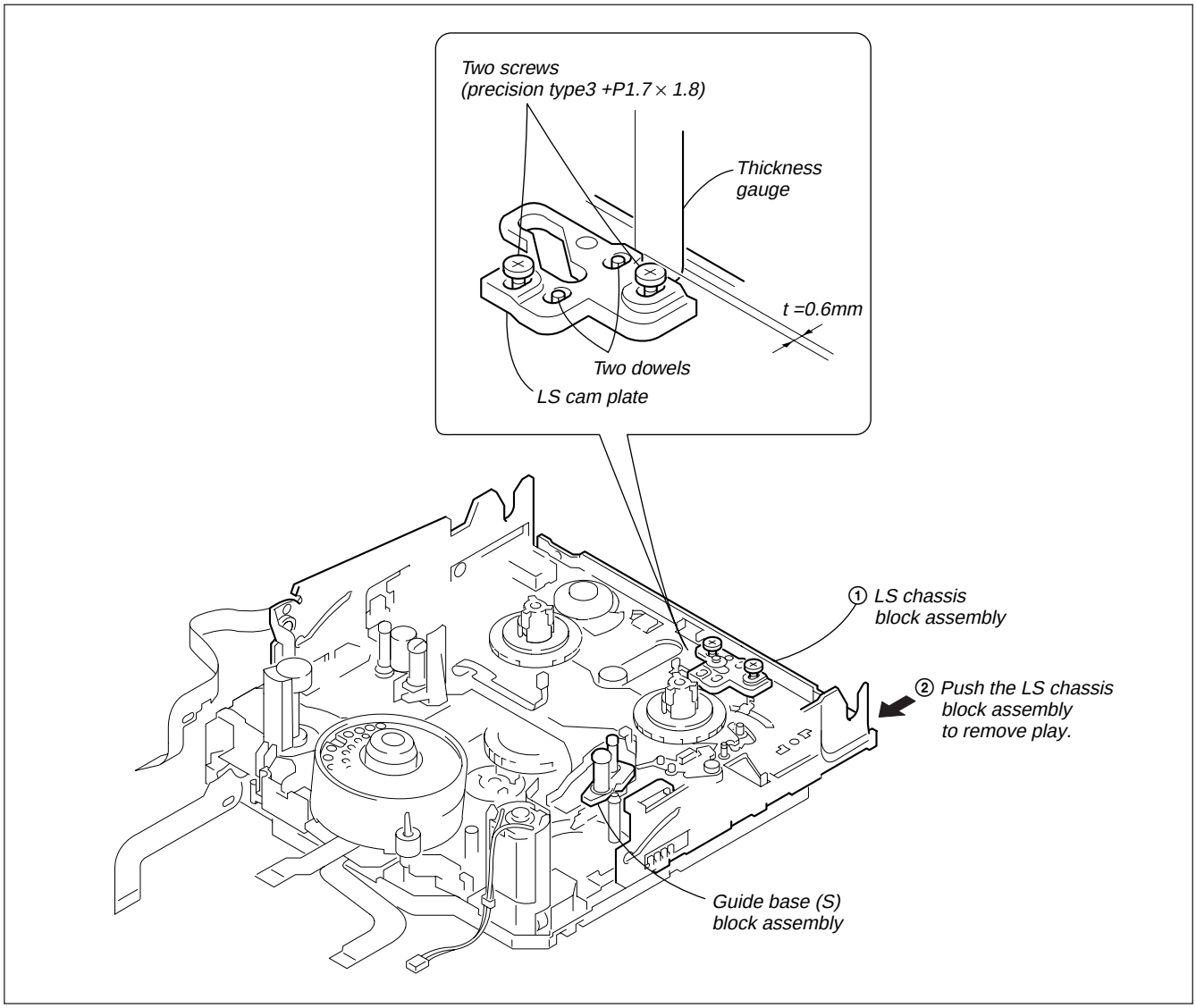

Two screws
(precision type3 +P1.7 × 1.8)
Thickness gauge
t =0.6mm
Two dowels
LS cam plate
① LS chassis block assembly
② Push the LS chassis block assembly to remove play.
Guide base (S) block assembly

Fig. 4-9.

4-10. LS Chassis Block Assembly

1. Removal procedure

1) Move the LS chassis block assembly between USE and LOAD.
2) Remove the blind plate. (Refer to 4-5.)
3) Remove the R drive gear assembly. (Refer to 4-8.)
4) Remove the HCL cut (1.8 × 4 × 0.5) ①.
5) Remove the three screws (M1.4 × 2.5) ②.
6) Remove the LS chassis block assembly ③ in the direction of the arrow Ⓐ.

2. Attachment procedure

1) Insert the LS guide roller and LS guide T2 pin of the mechanical chassis block assembly into the slot of the LS chassis block assembly ④.
2) Insert the pin of the LS arm assembly into the cam groove on the LS cam plate, face the TG7 drive pin ⑤ in the direction of the arrow Ⓑ, and insert it to the two slot of the mechanical chassis. Then, tighten the three screws (M1.4 × 2.5) ② in the order of Ⓒ, Ⓓ and Ⓔ.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
3) Attach the HCL cut (1.8 × 4 × 0.5) ① to the pin of the LS arm assembly.
4) Attach the R drive gear assembly. (Refer to 4-8.)
5) Attach the blind plate. (Refer to 4-5.)
6) Clean the tape running path. (Refer to 2-2.)

Note: Each arm must move smoothly.

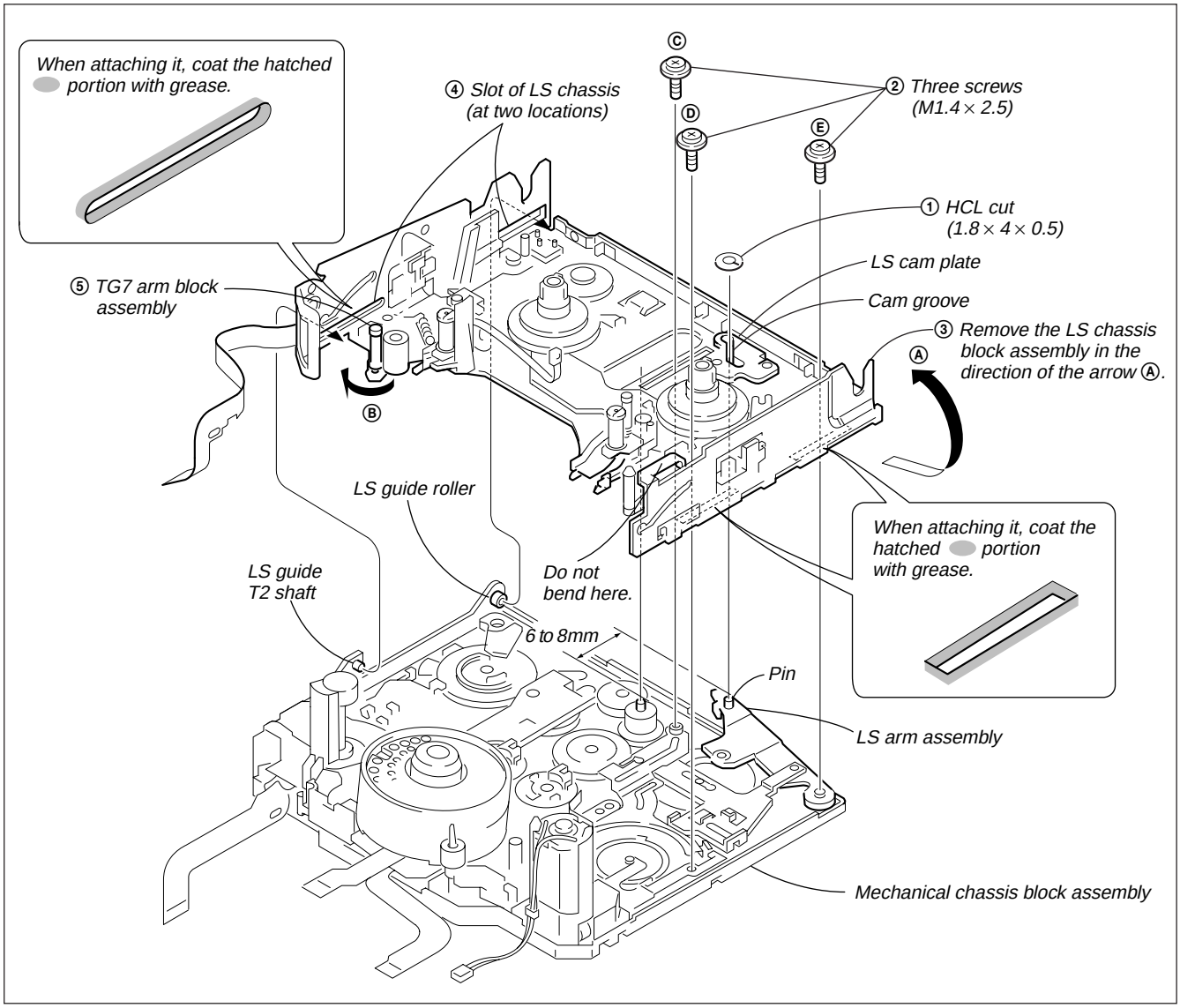

When attaching it, coat the hatched portion with grease.
④ Slot of LS chassis (at two locations)
Ⓒ
Ⓓ
Ⓔ
② Three screws (M1.4 × 2.5)
① HCL cut (1.8 × 4 × 0.5)
LS cam plate
Cam groove
⑤ TG7 arm block assembly
Ⓑ
③ Remove the LS chassis block assembly in the direction of the arrow Ⓐ.
Ⓐ
LS guide roller
When attaching it, coat the hatched portion with grease.
LS guide T2 shaft
Do not bend here.
6 to 8mm
Pin
LS arm assembly
Mechanical chassis block assembly

Fig. 4-10.

4-11. TG7 Arm Block Assembly, Pinch Arm Assembly

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the screw (camera pan2 M1.4 × 1.6) ①.
3) Remove the TG7 retainer ② in the direction of the arrow.
4) Remove the TG7 arm block assembly ⑥ and TG7 arm spring ⑦.
5) Remove the pinch roller arm assembly ③.
6) Remove the P lim arm roller ④ and pinch arm load spring ⑤.

2. Attachment procedure

1) Attach the P lim arm roller ④ to the pinch roller arm assembly ③.
2) Insert one end of the pinch arm load spring ⑤ into the hole on the rising metal sheet of the LS chassis block assembly, and hook the other end of the spring on the position setting protrusion of the LS-057 board.
3) Attach the pinch roller arm assembly ③ to the shaft of the LS chassis block assembly, and hook the pinch arm load spring ⑤ on the rising metal sheet of the pinch roller assembly ③.
4) Hook the TG7 arm spring ⑦ on the shaft of the LS chassis block assembly while the hook side of the spring is facing downward.
5) When attaching the TG7 arm block assembly ⑥ to the shaft of the LS chassis block assembly, hook the hook side of the TG7 arm spring ⑦ on the rising metal sheet of the LS chassis block assembly and hook the top side of the spring to the notch of the TG7 arm block assembly ⑥.
6) Attach the TG7 retainer ② with the screw (camera pan2 M1.4 × 1.6) ①.
7) Remove the LS chassis block assembly. (Refer to 4-10.)
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
8) Clean the tape running path. (Refer to 2-2.)

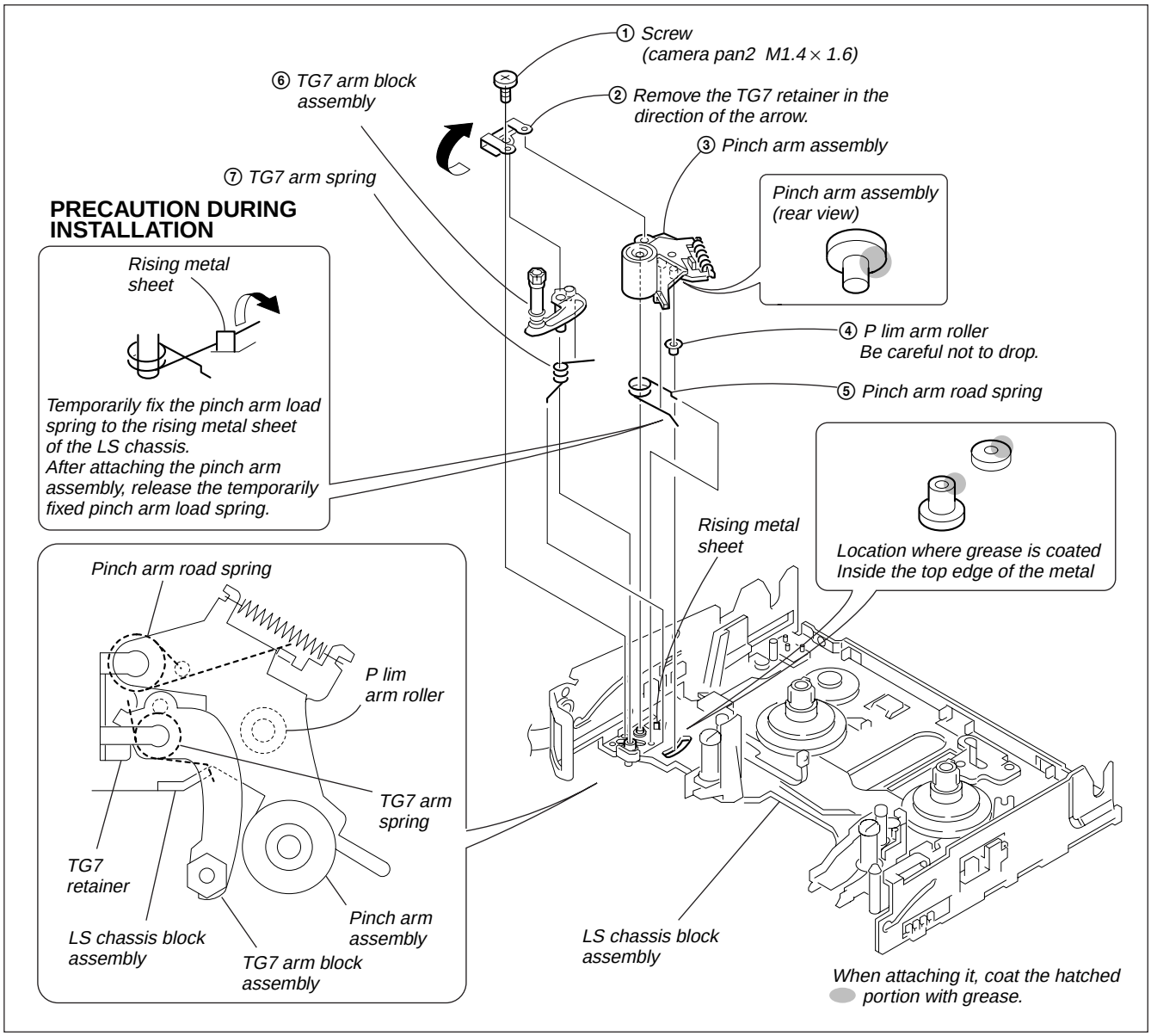

① Screw
(camera pan2 M1.4 × 1.6)
⑥ TG7 arm block assembly
② Remove the TG7 retainer in the direction of the arrow.
③ Pinch arm assembly
⑦ TG7 arm spring
Pinch arm assembly (rear view)
PRECAUTION DURING INSTALLATION
Rising metal sheet
Temporarily fix the pinch arm load spring to the rising metal sheet of the LS chassis.
After attaching the pinch arm assembly, release the temporarily fixed pinch arm load spring.
④ P lim arm roller
Be careful not to drop.
⑤ Pinch arm road spring
Rising metal sheet
Location where grease is coated
Inside the top edge of the metal
Pinch arm road spring
P lim arm roller
TG7 arm spring
TG7 retainer
LS chassis block assembly
Pinch arm assembly
TG7 arm block assembly
LS chassis block assembly
When attaching it, coat the hatched portion with grease.

Fig. 4-11.

4-12. Guide Base (T) Block Assembly, Guide Base (S) Block Assembly

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Align the claw of the guide base (T) block assembly ① with the notch of the guide arm T and remove the guide base (T) block assembly.
3) Remove the screw (M1.4 × 2.5) ② and remove the guide rail (T) ③.
4) Align the claw of the guide base (S) block assembly ④ with the notch of the guide arm S and remove the guide base (S) block assembly.
5) Remove the screw (M1.4 × 2.5) ⑤ and remove the guide rail (S) ⑥.

2. Attachment procedure

1) Align the holes on the guide rail (S) ⑥ with the protrusions (at two locations) of the LS chassis block assembly and attach the guide rail (S) ⑥ with the screw (M1.4 × 2.5) ⑤.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
2) Attach the guide base (S) block assembly ④ while aligning it with the groove on the guide arm S.
3) Align the holes on the guide rail (T) ③ with the protrusions (at two locations) of the LS chassis block assembly and attach the guide rail (T) ③ with the screw (M1.4 × 2.5) ②.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
4) Attach the guide base (T) block assembly ① while aligning it with the groove on the guide arm T.
   Note: Do not forget to hook the plate spring.
5) Withdraw the joint portion of the guide arm S and the guide arm T in the directions of the arrows Ⓐ and Ⓑ.
6) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)
7) Clean the tape running path. (Refer to 2-2.)

Note: Be careful of the shape of the guide base T/S block assembly.
Guide base (T) block assembly = Guide base (small)
Guide base (S) block assembly = Guide base (large)

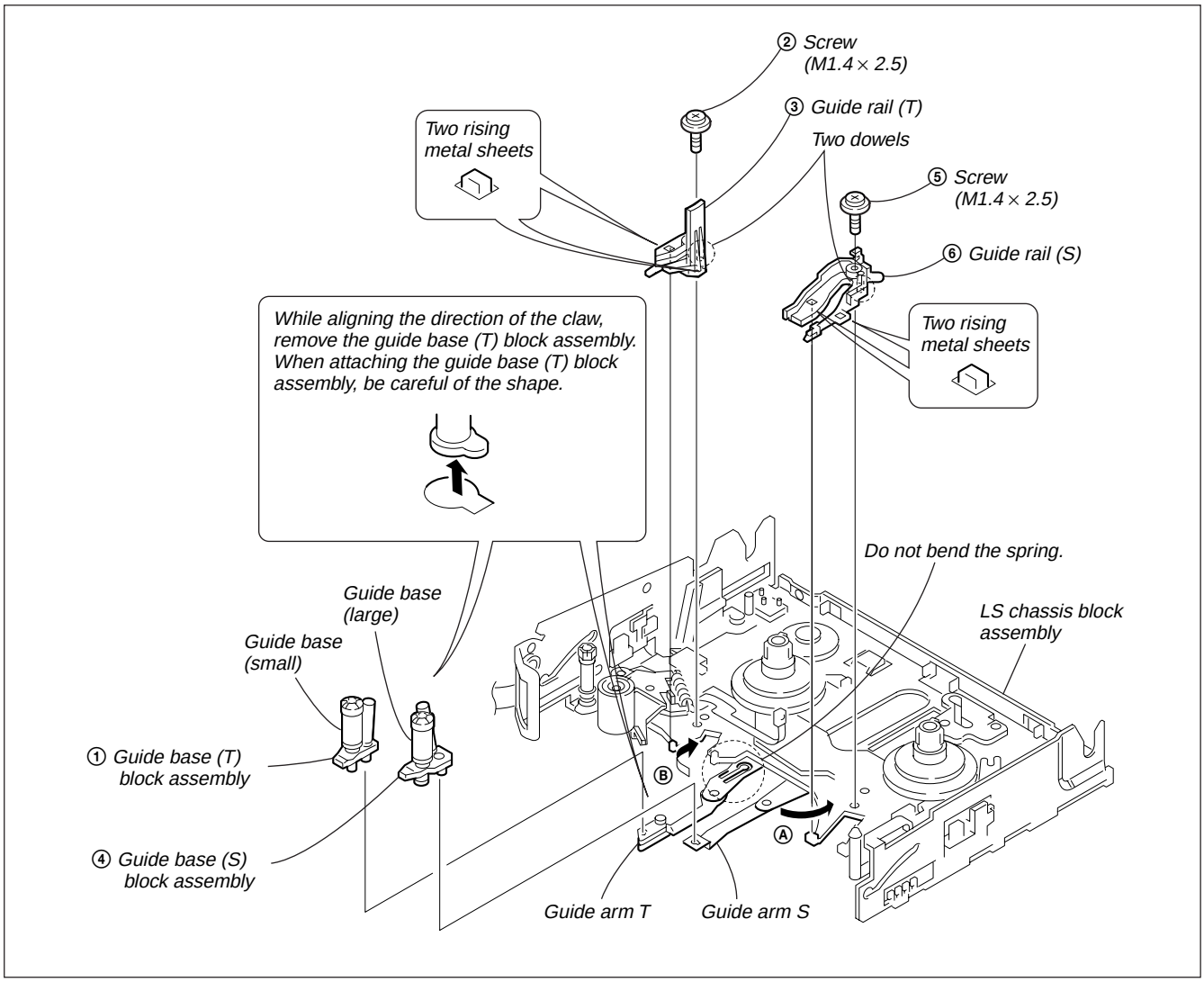

② Screw (M1.4 × 2.5)
③ Guide rail (T)
Two dowels
⑤ Screw (M1.4 × 2.5)
⑥ Guide rail (S)
Two rising metal sheets
Two rising metal sheets
While aligning the direction of the claw, remove the guide base (T) block assembly. When attaching the guide base (T) block assembly, be careful of the shape.
Do not bend the spring.
Guide base (large)
Guide base (small)
LS chassis block assembly
① Guide base (T) block assembly
④ Guide base (S) block assembly
Ⓑ
Ⓐ
Guide arm T
Guide arm S

Fig. 4-12.

4-13. TG1 Arm, Reel Table (S) Assembly, Push Switch (3Key)

1. Removal procedure

1) Remove the TG1 arm spring ①.
   Note: Take note of the position where the spring has been hooked.
2) Remove the TG1 arm ②.
3) Open the claw of the reel table (S) assembly ④ in the directions of the arrows Ⓑ and Ⓒ and remove the reel table S assembly.
4) Remove the RVS arm spring ⑤.
5) Rotate the S ratchet arm ③ in the direction of the arrow Ⓐ and remove the BT band assembly ⑥.
6) Remove the lock guide ⑦.
7) Remove the four solderings of the LS-057 board.
8) Remove the two claws ⑨ of the cassette guide T ⑫ from the notch of the LS chassis.
9) Remove the push switch (3key) ⑪ by releasing the two claws of the cassette guide T ⑫.

2. Attachment procedure

1) Attach the push switch (3key) ⑪ to the cassette guide T ⑫ with the two claws ⑩.
2) Attach the cassette guide T ⑫ to the notch of the LS chassis block assembly with the two claws ⑨.
3) Solder the cassette guide T ⑫ to the LS-057 board at the four locations.
4) Attach the lock guide ⑦.
5) Attach the BT band assembly ⑥.
6) Check the location of the reel table S ④. Then, rotate the S ratchet arm ③ in the direction of the arrow Ⓐ and insert the band of the BT band assembly ⑥ into the groove on the side.
7) Attach the BT band assembly to the TG1 arm ② and attach it to the mechanism chassis block assembly.
8) Check the shape of the hook of the TG1 arm spring ①. Hook one end of the spring on the TG1 arm ②. Then, hook the other end of the spring on the same location of the LS chassis block assembly where you have taken note when the spring is removed.
9) Attach the RVS arm spring.
10) Check the TG1 back-tension. (Refer to 5-1.)
    Note: The BT band assembly ⑤ must be completely inserted into the groove on the side of the reel table (S) ④.

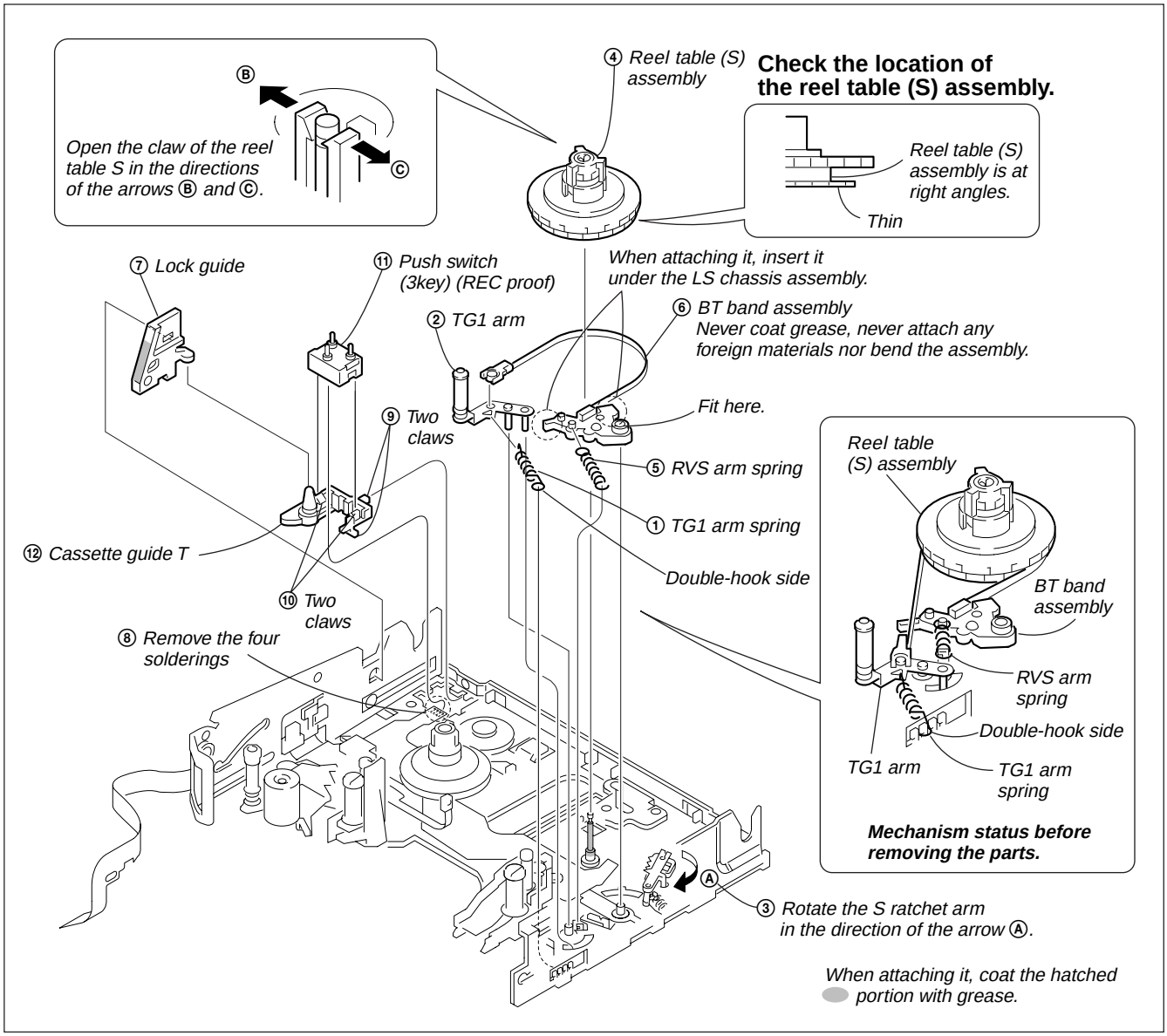

Ⓑ
Ⓒ
Open the claw of the reel table S in the directions of the arrows Ⓑ and Ⓒ.
④ Reel table (S) assembly
Check the location of the reel table (S) assembly.
Reel table (S) assembly is at right angles.
Thin
⑦ Lock guide
⑪ Push switch (3key) (REC proof)
When attaching it, insert it under the LS chassis assembly.
② TG1 arm
⑥ BT band assembly
Never coat grease, never attach any foreign materials nor bend the assembly.
Fit here.
⑨ Two claws
⑤ RVS arm spring
① TG1 arm spring
⑫ Cassette guide T
Double-hook side
⑩ Two claws
⑧ Remove the four solderings
Reel table (S) assembly
BT band assembly
RVS arm spring
Double-hook side
TG1 arm
TG1 arm spring
Mechanism status before removing the parts.
Ⓐ
③ Rotate the S ratchet arm in the direction of the arrow Ⓐ.
When attaching it, coat the hatched portion with grease.

Fig. 4-13.

4-14. Hall Element (H001, H002 (T/S Reel)), Photo Transistor (Q001, Q002 (Tape Top/Tape End), D001 (Tape LED)), LED (D001 (Tape LED))

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the LS grease cover.
3) Remove the two solderings and remove Q001 (tape top).
4) Remove the two solderings and remove Q002 (tape end).
5) Remove the two solderings and remove D001 (tape LED).
6) Remove the four solderings respectively from H001 (T reel) and H002 (S reel) and remove the H001 and H002.

2. Attachment procedure

1) Solder H001 (T reel) and H002 (S reel) respectively at the four locations.
2) Solder Q002 (tape end) at the two locations.
3) Solder Q001 (tape top) at the two locations.
4) Solder D001 (tape LED) at the two locations.
5) Attach the LS grease cover.
6) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)

Note: Be careful of the plarities of the Hall element (H001, H002), Photo-transistor (Q001, Q002) and LED (D001).

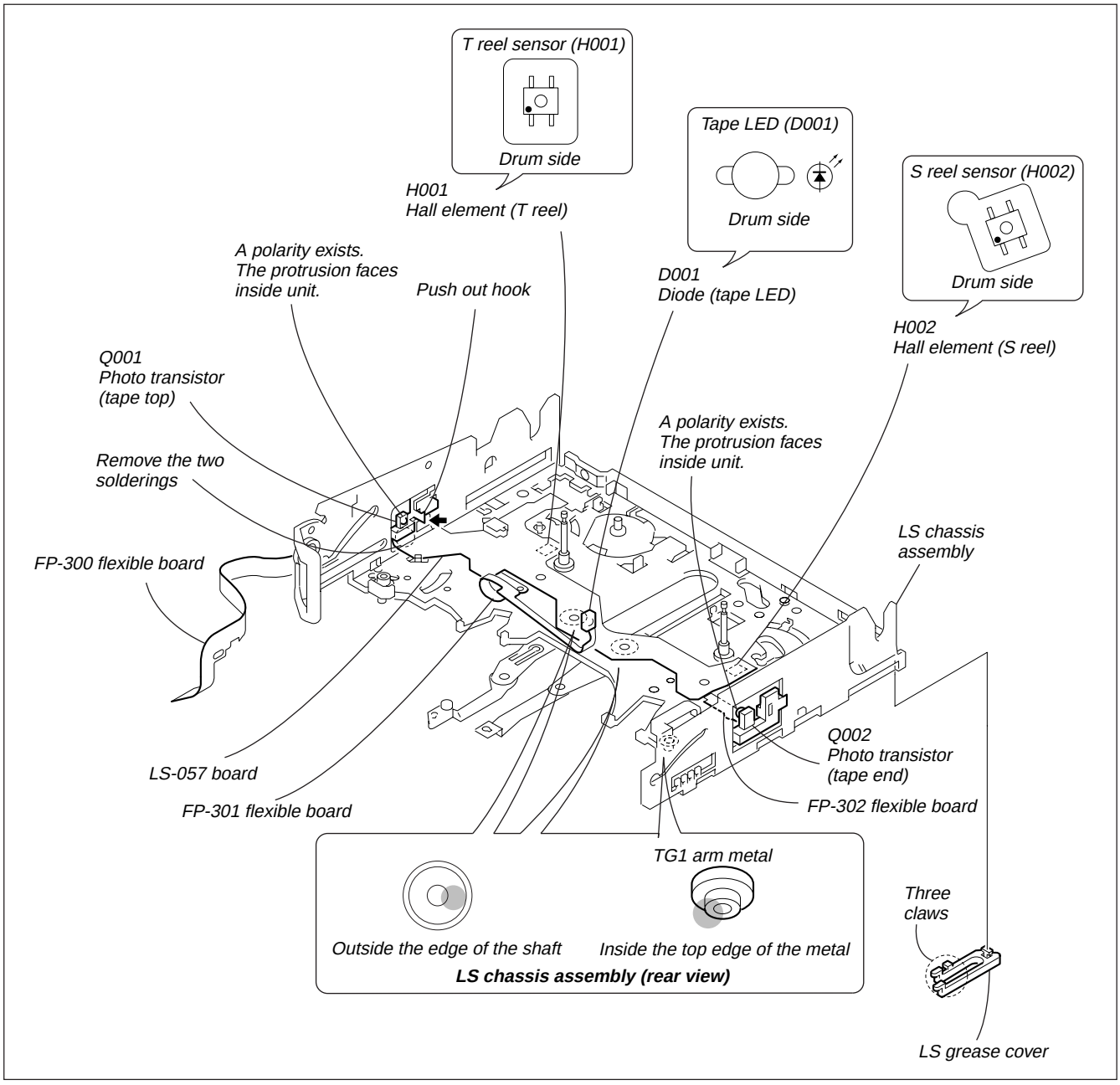


Fig. 4-14.

4-15. LS Guide Roller, Guide Lock Plate (T), Pinch Pusher Assembly, Eject Arm

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the LS guide roller ①.
3) Remove the P pressure plate spring ②.
4) Remove the HLW cut (0.98 × 3 × 0.25) ③.
5) Remove the pitch pressure plate assembly ④ in the direction of the arrow Ⓐ.
6) Remove the relay gear ⑤.
7) Remove the screw (camera pan2 M1.4 × 1.6) ⑥.
8) Remove the guide lock plate (T) ⑦ in the direction of the arrow Ⓑ.
9) Remove the eject arm spring ⑧ and HLW cut (0.98 × 3 × 0.25) ⑨.
   Note: Do not reuse the HLW cut.
10) Remove the eject arm ⑩.

2. Attachment procedure

1) Attach the eject arm spring ⑧ to the eject arm ⑩.
2) Hook one end of the eject arm spring ⑧ on the protrusion of the main chassis block assembly and attach the eject arm to the shaft.
3) Attach the HLW cut (0.98 × 3 × 0.25) ⑨.
   Do not reuse the HLW cut.
4) Attach the guide lock plate T ⑦ while aligning it with the notches Ⓒ and Ⓓ.
5) Attach the screw (camera pan2 M1.4 × 1.6) ⑥.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
6) Attach the relay gear ⑤.
7) Attach the pinch pusher plate ④ with the HLW cut (0.98 × 3 × 0.25) ③.
8) Attach the P pressure plate spring ②.
   Insert the concave side of the LS guide roller ① into the shaft to attach the LS guide roller.
   Note: Insert the roller completely.
9) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)

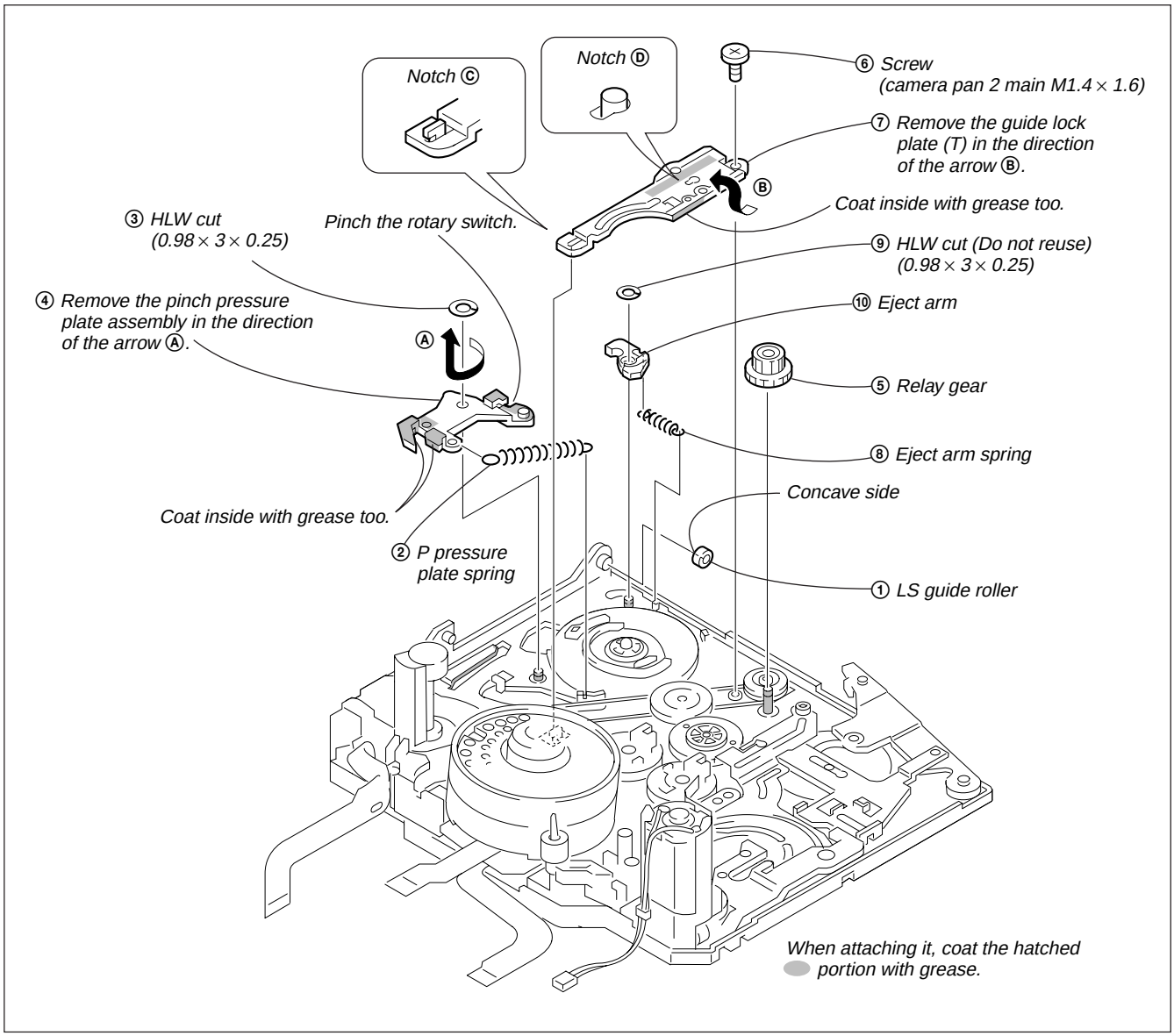

Notch Ⓒ
Notch Ⓓ
⑥ Screw (camera pan 2 main M1.4 × 1.6)
⑦ Remove the guide lock plate (T) in the direction of the arrow Ⓑ.
Ⓑ
Coat inside with grease too.
③ HLW cut (0.98 × 3 × 0.25)
Pinch the rotary switch.
⑨ HLW cut (Do not reuse) (0.98 × 3 × 0.25)
④ Remove the pinch pressure plate assembly in the direction of the arrow Ⓐ.
Ⓐ
⑩ Eject arm
⑤ Relay gear
⑧ Eject arm spring
Concave side
Coat inside with grease too.
② P pressure plate spring
① LS guide roller
When attaching it, coat the hatched portion with grease.

Fig. 4-15.

4-16. Rotary Switch, Cam Relay Gear, Change Gear Assembly, Timing Belt

Before replacing the timing belt, remove the guide rail T2 and capstan motor. (Refer to 4-4.)

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the guide lock plate (T), pinch pressure assembly and eject arm. (Refer to 4-15.)
3) Remove the cam relay gear ①.
4) Remove the timing belt ②.
5) Remove the HLW cut (0.98 × 3 × 0.25) ③ and change gear assembly ④.
6) Remove the four solderings ⑤ and remove the FP-299 flexible wiring board ⑥.
7) Push up the dowel of the rotary switch ⑦ from the bottom of the mechanism chassis assembly and remove the rotary switch in the direction of the arrow.

2. Attachment procedure

1) Insert the dowel of the rotary switch ⑦ into the hole on the mechanism chassis assembly and attach the rotary switch clockwise.
2) Align the FP-299 flexible wiring board ⑥ with the reference hole on the mechanism chassis and solder the flexible wiring board to the rotary switch ⑦ (at four locations).
3) Attach the change gear assembly ④ with the HLC cut (0.98 × 3 × 0.25)③.
4) Attach the timing belt ②.
   Note: There must be a clearance between the rotary switch ⑦ and timing belt ②.
5) Attach the cam relay gear ①.
   The in-phase markings of the rotary switch ⑦, cam relay gear (2) and cam relay gear (1) must be aligned.
6) Attach the guide lock plate (T), pinch pressure assembly and eject arm. (Refer to 4-15.)
7) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)
8) Clean the shaft of the capstan motor. (Refer to 2-2.)

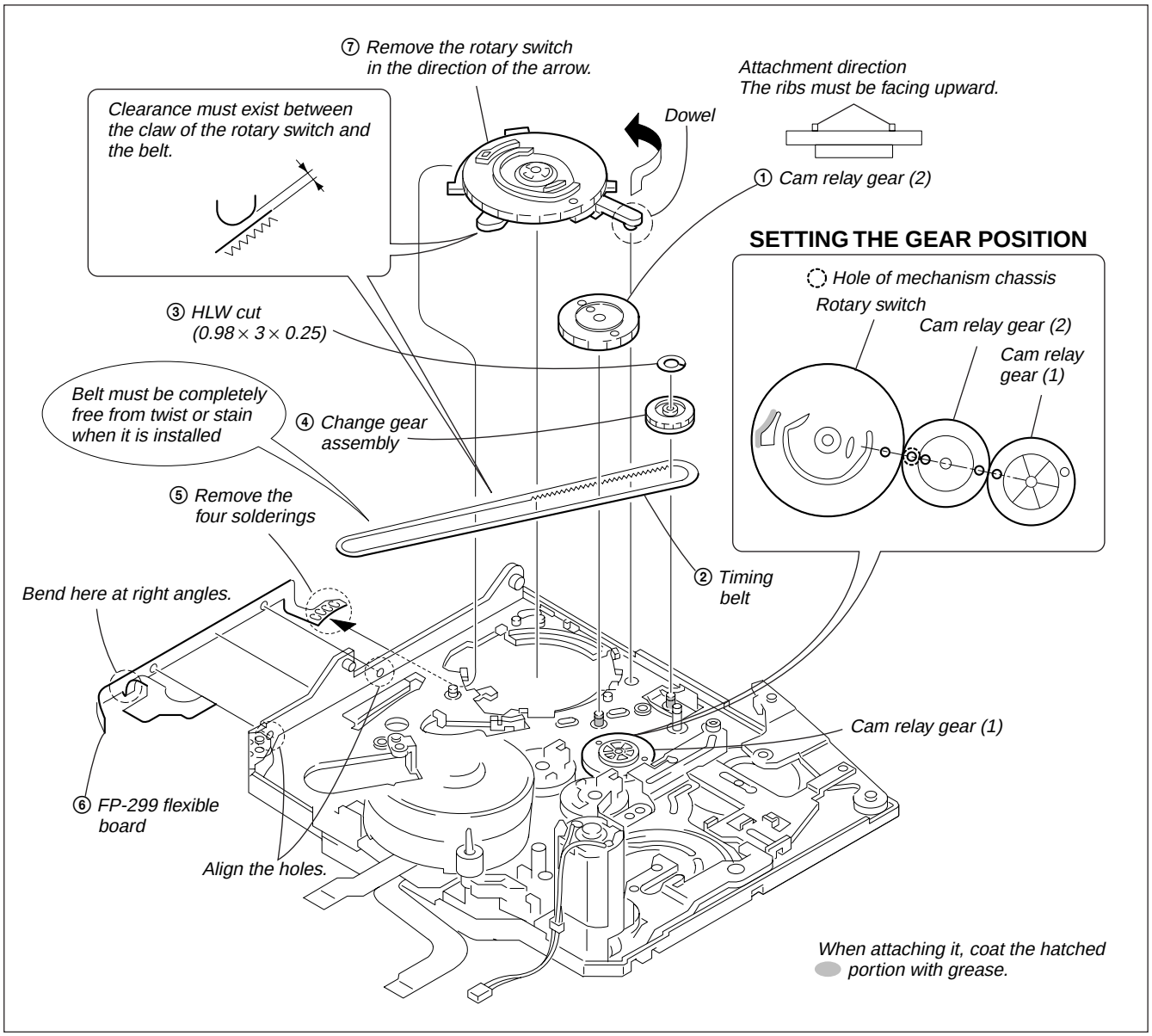

⑦ Remove the rotary switch in the direction of the arrow.
Attachment direction
The ribs must be facing upward.
Clearance must exist between the claw of the rotary switch and the belt.
Dowel
① Cam relay gear (2)
SETTING THE GEAR POSITION
Hole of mechanism chassis
Rotary switch
Cam relay gear (2)
Cam relay gear (1)
③ HLW cut (0.98× 3× 0.25)
Belt must be completely free from twist or stain when it is installed
④ Change gear assembly
⑤ Remove the four solderings
② Timing belt
Bend here at right angles.
Cam relay gear (1)
⑥ FP-299 flexible board
Align the holes.
When attaching it, coat the hatched portion with grease.

Fig. 4-16.

4-17. Guide Gear Assembly, Guide Gear T Assembly, Cam Relay Gear 1, Guide Lock Plate (S)

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the screw (camera pan2 main M1.4 × 1.6) ①.
3) Remove the guide lock plate (S) ② in the direction of the arrow Ⓐ.
4) Remove the two stop rings (E type 1.2) ③.
5) Remove the guide gear (S) assembly ④ and guide gear (T) assembly ⑤.
6) Remove the HLW cut (0.98 × 3 × 0.25) ⑥.
7) Remove the cam relay gear (1) ⑦.

2. Attachment procedure

1) Attach the cam relay gear (1) ⑦ with the HLW cut (0.98 × 3 × 0.25) ⑥.
   Note: The in-phase markings of the cam relay gear (1) ⑦, cam gear (2) and cam relay gear must be aligned.
2) Attach the guide gear (T) assembly ⑤ and guide gear (S) assembly ④ to the shaft in this order and adjust the positions. Then, attach them with the two stop rings (E type 1.2) ③.
   Note1: The in-phase markings of the GL arm assembly, guide gear (S) ④ and guide gear (T) ⑤ must be aligned.
   Note2: The guide gear assembly (S/T) has a different shape respectively. Pay attention to the shapes.
3) Fit the guide lock plate (S) ② in the groove on the shaft and insert the portion Ⓑ into the notch. Then, attach the plate with the screw (camera pan2 main M1.4 × 1.6) ①.
   Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
4) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)

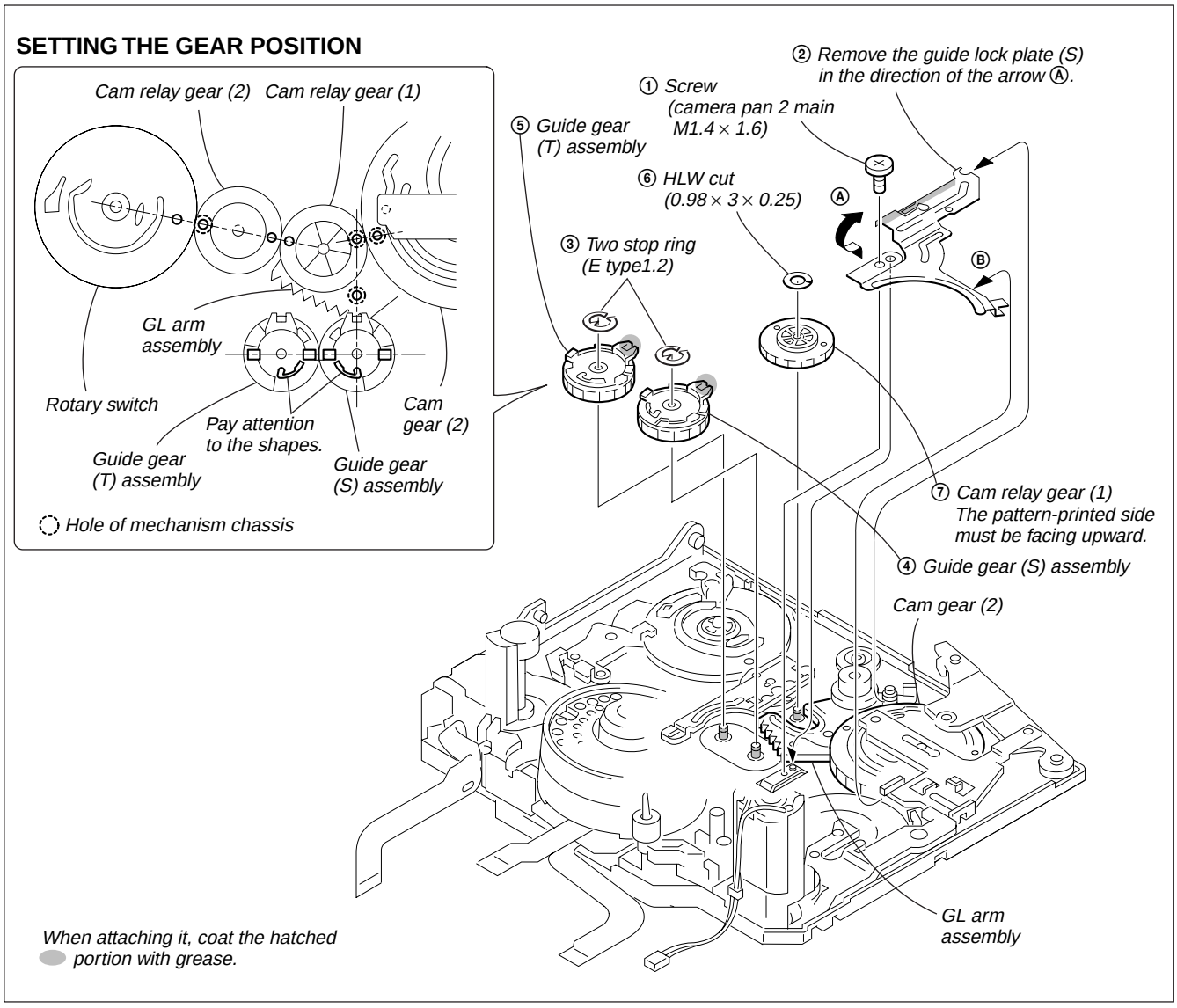

SETTING THE GEAR POSITION
Cam relay gear (2)
Cam relay gear (1)
GL arm assembly
Rotary switch
Pay attention to the shapes.
Cam gear (2)
Guide gear (T) assembly
Guide gear (S) assembly
Hole of mechanism chassis
② Remove the guide lock plate (S) in the direction of the arrow Ⓐ.
① Screw (camera pan 2 main M1.4 × 1.6)
⑤ Guide gear (T) assembly
⑥ HLW cut (0.98 × 3 × 0.25)
③ Two stop ring (E type1.2)
Ⓐ
Ⓑ
⑦ Cam relay gear (1) The pattern-printed side must be facing upward.
④ Guide gear (S) assembly
Cam gear (2)
GL arm assembly
When attaching it, coat the hatched portion with grease.

Fig. 4-17.

4-18. LD Gear 4, Cam Gear 1, HC Drive Arm

Remove in advance the HCL arm assembly and loading motor assembly beforehand. (Refer to 4-2.)

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the guide lock plate (S). (Refer to 4-17.)
3) Remove the cover sheet ① and LD gear (4) ②.
4) Remove the T1 limiter arm ③ and cam gear (1) ④.
5) Remove the HC drive arm ⑤ in the direction of the arrow.

2. Attachment procedure

1) Attach the HC drive arm ⑤ under the drive base assembly.
2) Attach the cam gear (1) ④.
   The dowel of the HC drive arm ⑤ must be inserted into the groove on the lower side of the cam gear (1) ④.
   The in-phase markings of the cam gear (1) ④, cam gear (2) and cam relay gear (1) must be aligned.
3) Attach the LD gear (4) ② with the cover sheet ①.
4) Attach the guide plate (S).
5) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)
6) Clean the tape running path. (Refer to 2-2.)

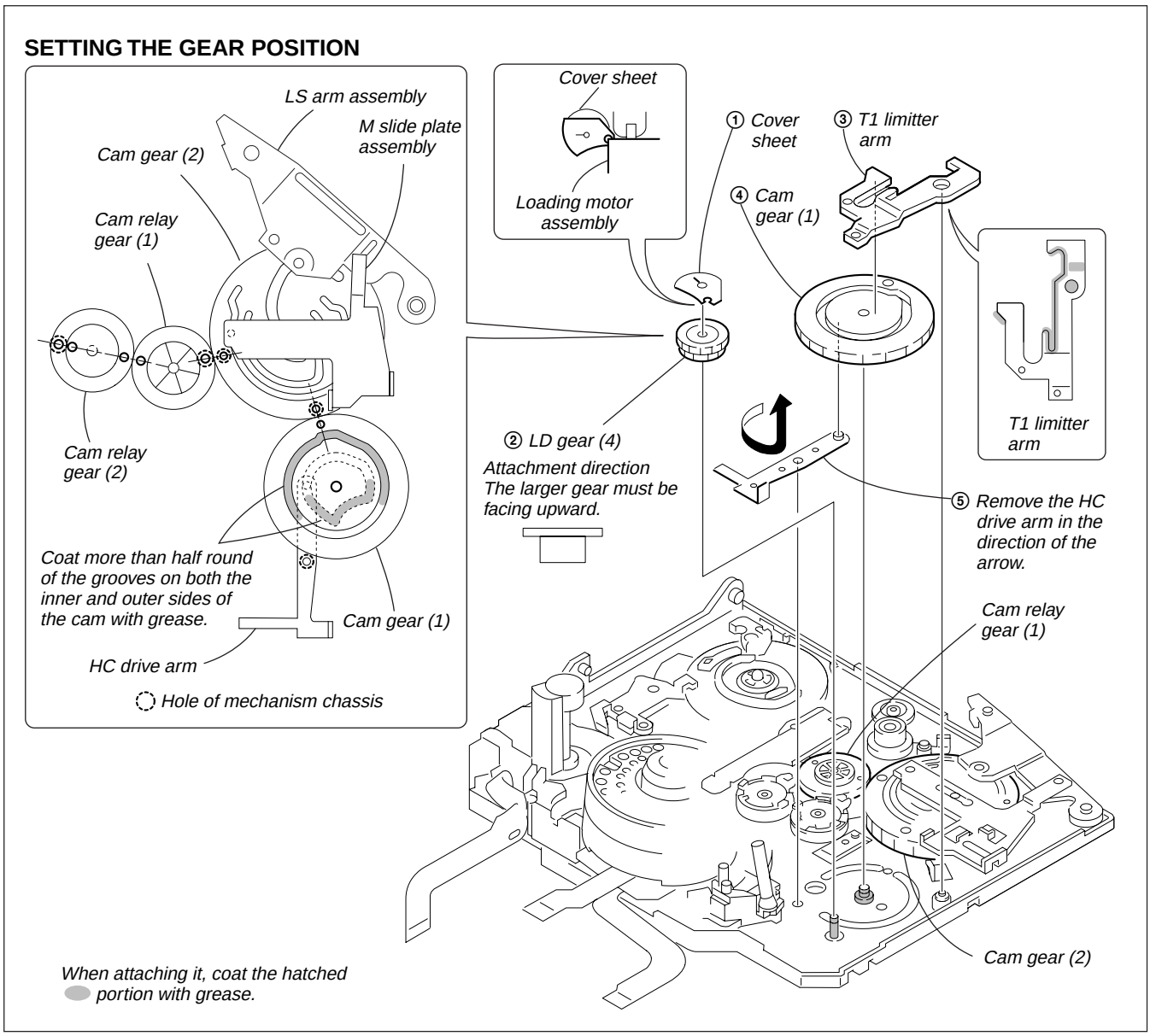

SETTING THE GEAR POSITION
LS arm assembly
M slide plate assembly
Cam gear (2)
Cam relay gear (1)
Cam relay gear (2)
Coat more than half round of the grooves on both the inner and outer sides of the cam with grease.
Cam gear (1)
HC drive arm
Hole of mechanism chassis
Cover sheet
Loading motor assembly
① Cover sheet
③ T1 limitter arm
④ Cam gear (1)
T1 limitter arm
② LD gear (4)
Attachment direction
The larger gear must be facing upward.
⑤ Remove the HC drive arm in the direction of the arrow.
Cam relay gear (1)
Cam gear (2)
When attaching it, coat the hatched portion with grease.

Fig. 4-18.

4-19. M Slide Plate Assembly, LS Arm Assembly, Cam Gear 2, GL Arm Assembly

1. Removal procedure

1) Remove the LS chassis block assembly. (Refer to 4-10.)
2) Remove the guide lock plate (S) (Refer to 4-17.)
3) Remove the relay gear ①.
4) Remove the M slide plate assembly ② in the direction of the arrow Ⓐ.
5) Remove the LS arm assembly ③ and LS arm roller ④.
6) Remove the cam gear (2) ⑤.
7) Remove the GL arm assembly ⑥ from the lower side of the cam relay gear (1) in the direction of the arrow Ⓑ.

Note: After removing the GL arm assembly, fix the guide gear (S/T) assembly.

2. Attachment procedure

1) Attach the GL arm assembly ⑥ to the shaft so that the GL arm assembly ⑥ is positioned under the cam relay gear (1) .

Note: The in-phase markings of the guide gear (S/T) assembly and GL arm assembly ⑥ must be aligned.

2) While aligning the cam gear (2) ⑤ with the dowel of the GL arm assembly, attach the cam gear (2) ⑤.

Note: The in-phase markings of the cam relay gear (1), cam gear (1) and cam gear (2) ⑤ must be aligned.

3) Attach the LS arm roller ④ to the LS arm assembly ③. While aligning them with the cam groove on the cam gear (2) ⑤, attach them.
4) Attach the M slide plate assembly ②.
5) Attach the relay gear ①.
6) Attach the guide lock plate (S). (Refer to 4-17.)
7) Attach the LS chassis block assembly to the mechaical chassis. (Refer to 4-10.)

Note: Check that the in-phase marking of each gear is aligned.

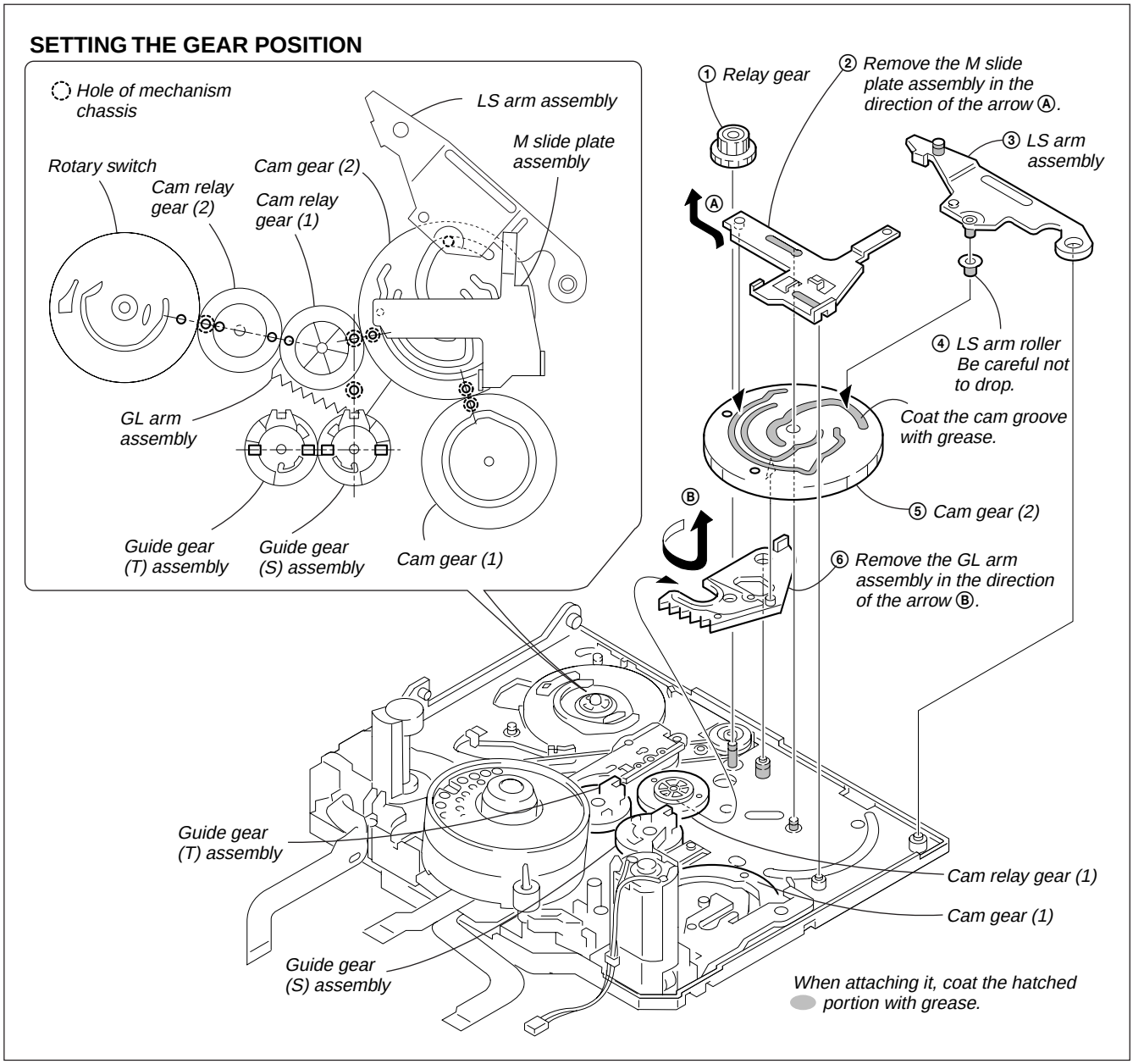

SETTING THE GEAR POSITION
Hole of mechanism chassis
LS arm assembly
M slide plate assembly
Rotary switch
Cam relay gear (2)
Cam gear (2)
Cam relay gear (1)
GL arm assembly
Guide gear (T) assembly
Guide gear (S) assembly
Cam gear (1)
① Relay gear
② Remove the M slide plate assembly in the direction of the arrow Ⓐ.
③ LS arm assembly
Ⓐ
④ LS arm roller Be careful not to drop.
Coat the cam groove with grease.
⑤ Cam gear (2)
Ⓑ
⑥ Remove the GL arm assembly in the direction of the arrow Ⓑ.
Guide gear (T) assembly
Cam relay gear (1)
Cam gear (1)
Guide gear (S) assembly
When attaching it, coat the hatched portion with grease.

Fig. 4-19.

5. Adjustment

5-1. Check and Adjustment of TG1 Back-tension Position

1. Check Procedure

1) Assemble the mechanism deck into the main unit.
2) Thread a normal tape and let the machine enter the PB (or REC) mode.
3) Check that the distance between the upper flange of the TG1 guide and the side surface of the LS chassis block is 12.0 ± 0.4 mm (range of fluctuation: 0.5 mm or less).

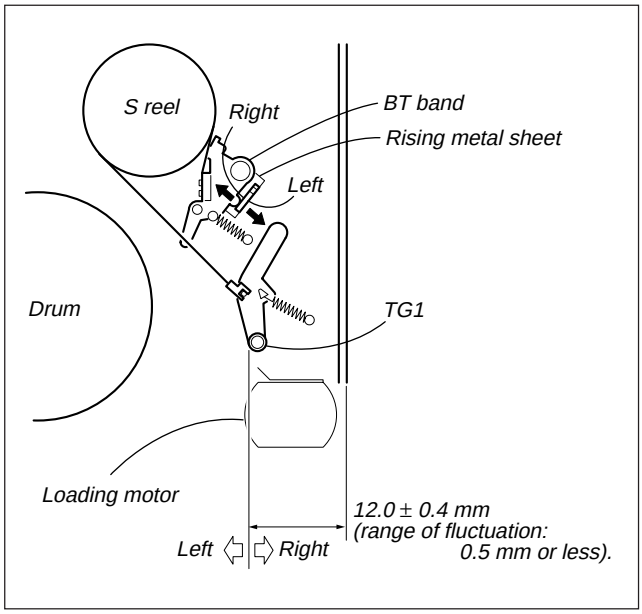


Fig. 5-1.

2. Adjustment Procedure

1) Remove the cassette compartment and the blind plate.
2) Adjust the position of the TG1 guide by changing the tilt of the rising metal sheet of the LS chassis block assembly.

5-2. Check and Adjustment of FWD/RVS Back-tension

1. Check Procedure

1) Install the mechanism deck in the main unit and set the take-up torque cassette (Ref. No. J-7).
2) Check the FWD/RVS take-up torque.
   Check the FWD torque in the PLAY state.
   Specified value: 7 to 12 gf•cm
   Check the RVS torque in the RVS state.
   Specified value: 19.5 to 29.5 gf•cm

2. Adjustment Procedure

1) If the value of the FWD torque is larger than the specifications, change the position where the TG1 arm spring is hooked in the direction of the arrow Ⓐ. If the value of the FWD torque is smaller than the specifications, change the position in the direction of the arrow Ⓑ.

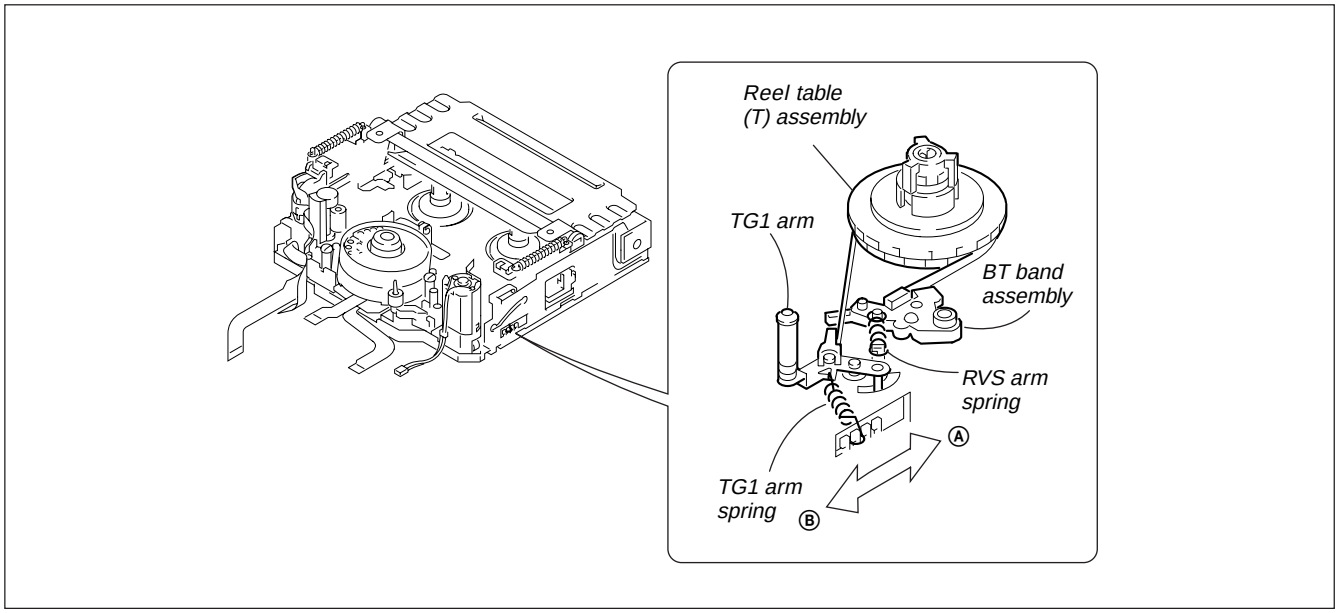


Fig. 5-2.

5-3. Capstan Motor Azimuth Position Adjustment

1. Check Procedure

1) Insert the thickness gauge (Ref. No. J-16) of 0.75 mm between the protrusion of the mechanism chassis and the capstan motor, and check the azimuth position.

2. Adjustment Procedure

1) Loosen the capstan azimuth adjustment screw (SANG camera pan 2 M1.4 × 4.5), and insert the thickness gauge (0.75 mm)(Ref. No. J-16) between the protrusion of the mechanism chassis and the capstan motor.
2) Slowly tighten the capstan azimuth adjustment screw until it slightly contacts the thickness gauge, and remove the thickness gauge.

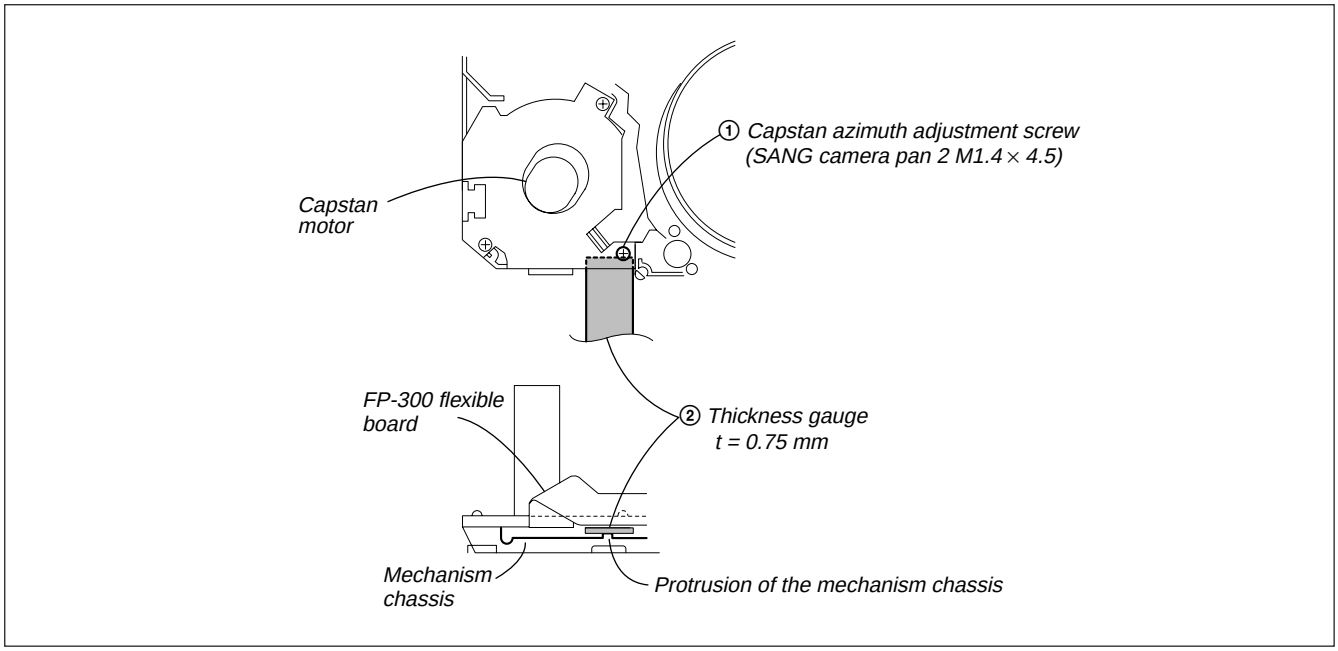


Fig. 5-3.

5-4. Tape Path Adjustment

Purpose: Adjust the linearity of the head.
If the adjustment is not correct:
Noise appears on the top and bottom of the screen when playing back the tape that is recorded by other recorders.

5-4-1. Adjustment Preparation

1) Clean the tape running surface (tape guides, drum, capstan shaft, pinch roller).
2) Connect the adjustment remote commander to the remote terminal.
3) Set the adjustment remote commander to the PATH mode (track shift mode)* and release the auto tracking.
4) Connect an oscilloscope as follows:
   CH1: Test connector' PB RF terminal
   External trigger: Test connector' RF SWP terminal
5) Playback the tracking alignment tape WR5-1NP (NTSC), WR5-1CP (PAL) (Ref. No. J-6).
6) Confirm that the RF waveform on scope is flat both at entrance side and exit side.
   If the RF waveform is not flat, perform the adjustment by referring to section 4-2.)
7) After the adjustment is completed, release the PATH mode (track shift mode)*.

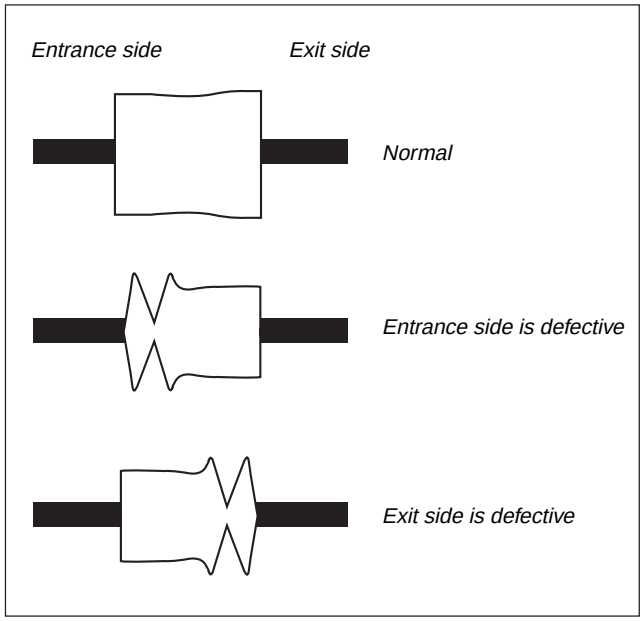


Fig. 5-4.

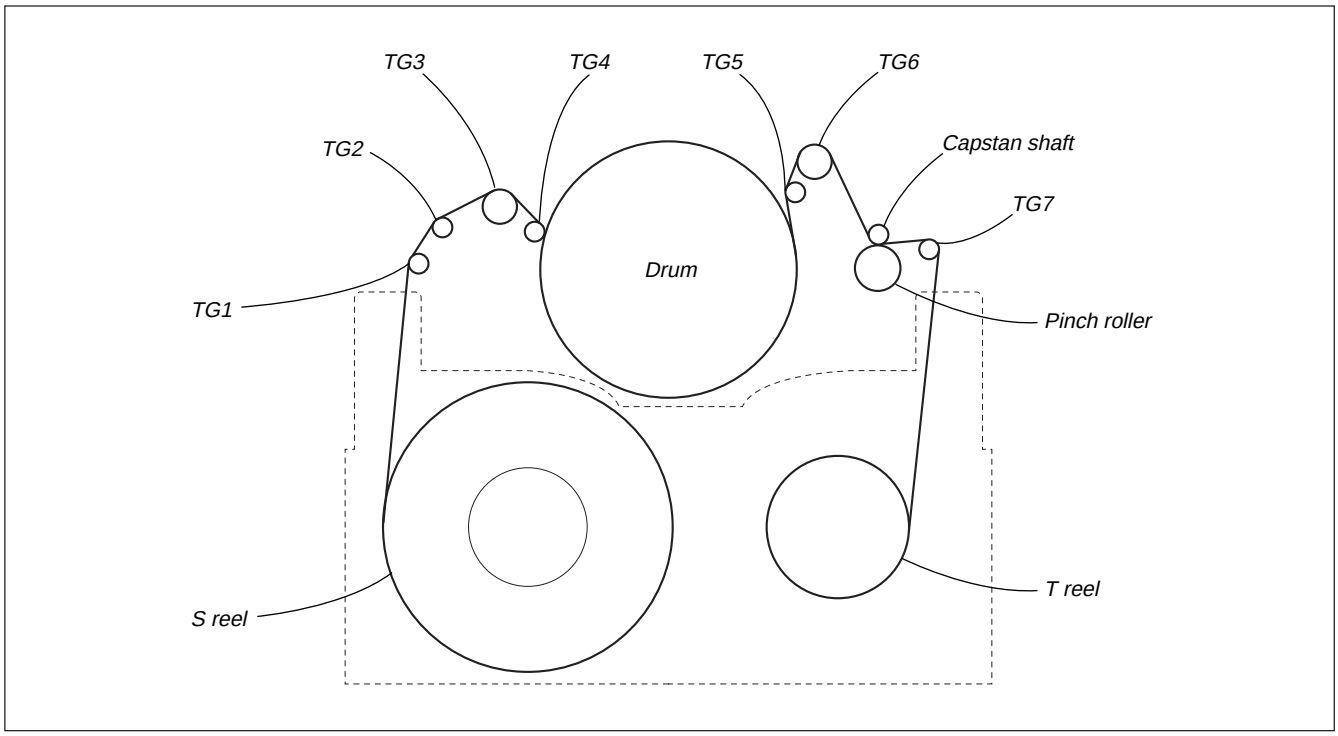


Fig. 5-5.

* **Setting and releasing the track shift mode**

In case of the DCR-TRV230

Setting
1. Select page: 0, address: 01 and set data: 01.
2. Select page: F, address: 22 and set data: 88, and press the PAUSE button.
3. Select page: 2, address: 2E and set data: 02. (Note)

Releasing
1. Select page: 0, address: 01 and set data: 01.
2. Select page: F, address: 22 and set data: 80, and press the PAUSE button.
3. Select page: 2, address: 2E and set data: 00.
4. Select page: 0, address: 01 and set data: 00. (Note)

Note: In case of the Digital8 only, set the data of page: 2, address: 2E.

5-4-2. Tracking Adjustment (Refer to Fig. 5-6.)

1) Playback the tracking alignment tape WR5-1NP (NTSC), WR5-1CP (PAL) (Ref. No. J-6).
2) Adjust the No.3 guide until the envelope at the entrance side waveform becomes flat.
3) Adjust the No.6 guide until the envelope at the exit side waveform becomes flat.

☆ The TG-3/6 zenith adjustment screws do not need to be adjusted.

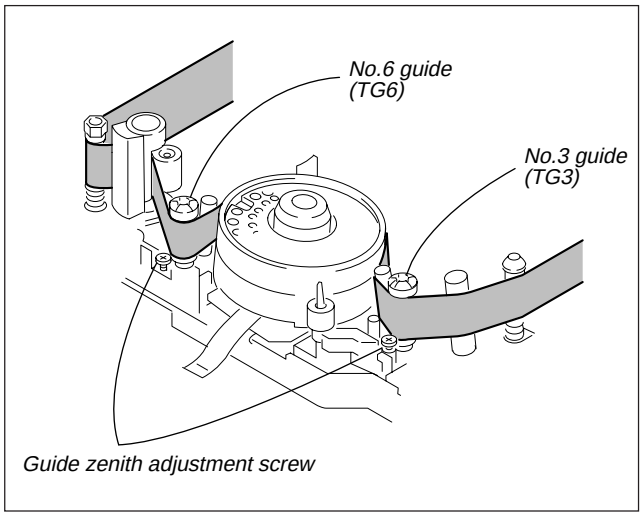


Fig. 5-6.

5-4-3. No.7 Guide (TG7) Adjustment (Refer to Fig. 5-7.)

1) Playback the tape and set the REV mode.
2) Confirm that tape slack does not occur in between the No.6 guide (TG6) ① and capstan ②. If any tape slack occurs, rotate the TG7 nut ④ of the No.7 guide (TG7) ③ to remove the tape slack.
3) Playback the tape again and confirm that tape slack does not occur between the capstan ② and No.7 guide (TG7) ③. If the tape slack occurs exceeding the specifications (specifications: 0.5 mm or less), rotate the TG7 nut ④ to make the tape slack below the specifications (0.5 mm). When the tape slack between the No.6 guide (TG6) ① and capstan ② is 0.3 mm or less in the REV mode, it means that the adjustment is completed.

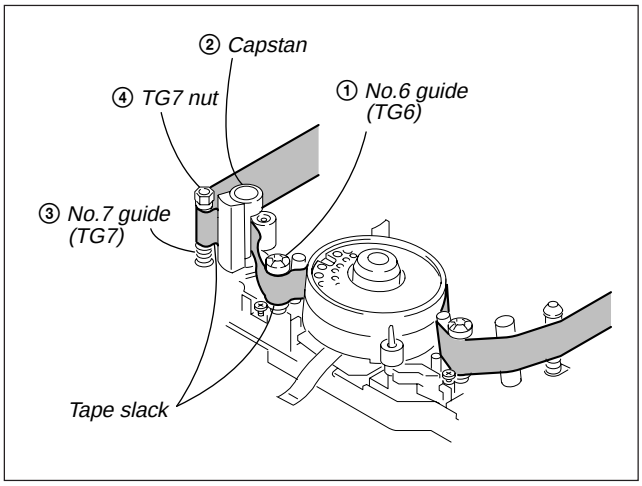


Fig. 5-7.

5-4-4. CUE and REV Waveform Check (Refer to Fig. 5-8)

1) Playback the tracking alignment tape WR5-1NP (NTSC), WR5-1CP (PAL)(Ref. No. J-6) and enter the REV mode.
   Confirm on an oscilloscope that the pitches between the peaks of the RF waveform are equally spaced for 5 seconds or more.
   If pitches between peaks of the RF waveform are not equal, perform sections "5-4-2 Tracking Adjustment" and "5-4-3 No. 7 Guide (TG7) Adjustment".
2) Enter the UCE mode. Confirm on an oscilloscope that the pitches between the peaks of the RF waveform are equally spaced for 5 seconds or more.
   If pitches between peaks of the RF waveform are not equal, perform section "5-4-2 Tracking Adjustment".

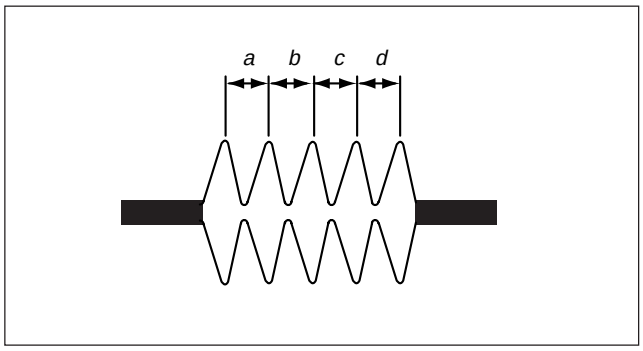


Fig. 5-8.

5-4-5. Check upon Completion of Adjustment

5-4-5-1. Tracking Check

1) Playback the tracking alignment tape in the PATH mode. Compare the amplitude of the RF waveform in the AUTO tracking mode and with that in the PATH mode. Confirm that the amplitude of the RF waveform decreases to about 3/4 when the tracking alignment tape is switched from the AUTO tracking mode to the PATH mode. (Refer to Fig. 5-9)
2) During step 1, confirm that the minimum amplitude (E MIN) is 65% or more of the maximum amplitude (E MAX) of the RF waveform. (Refer to Fig. 5-10)
3) Confirm that the RF waveform does not fluctuate too excessively.(Refer to Fig. 5-11)

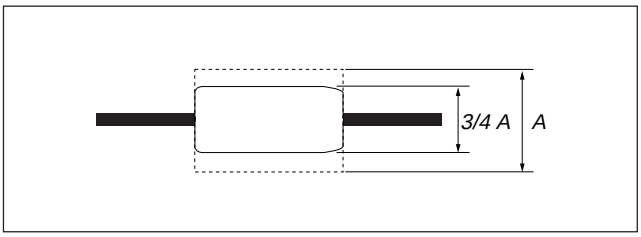


Fig. 5-9.

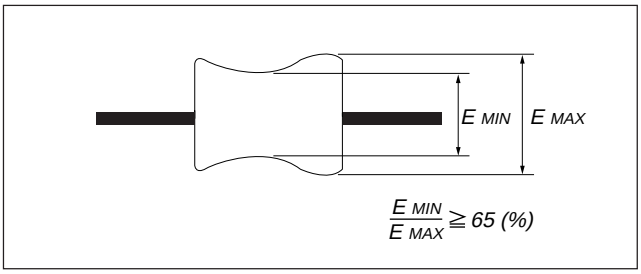


Fig. 5-10.

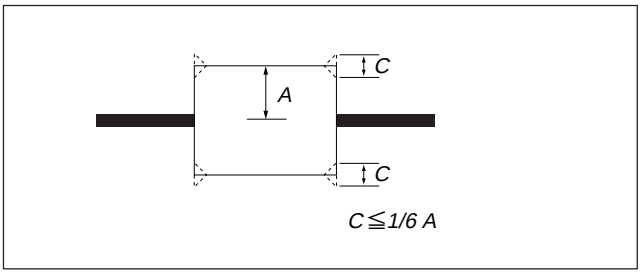


Fig. 5-11.

5-4-5-2. Rise-up Check (Refer to Fig. 5-12)

1) Playback the tracking alignment tape WR5-1NP (NTSC), WR5-1CP (PAL)(Ref. No. J-6).
2) Turn OFF the Track Shift mode.
3) Eject the cassette tape once. Then insert the cassette tape for loading again.
4) Confirm that the RF waveform rises up to the flat envelope within 3 seconds after the machine enters the PLAY mode. Check also that the tape slack does not occur at around the pinch roller.
5) Run the tape in the CUE/REV and the FF/REW mode. Then playback the tracking alignment tape and confirm the RF waveform rises up to the flat envelope within 3 seconds after the machine enters the PLAY mode. Check also that the tape slack does not occur at around the pinch roller.
6) Repeat the above steps 3) to 5) once again for re-check.

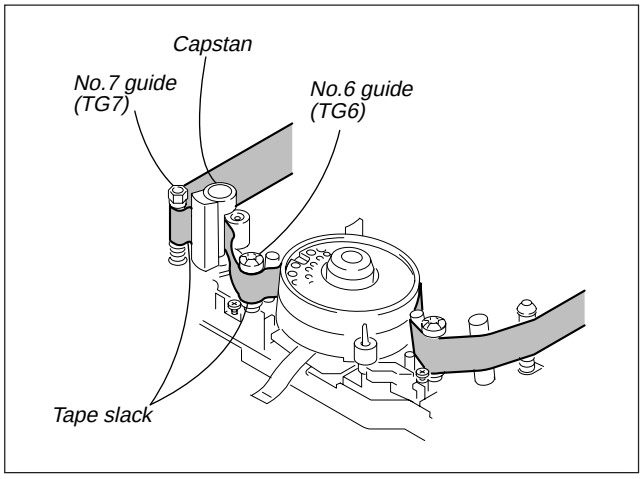


Fig. 5-12.

5-4-5-3. Tape Run Check (Refer to Fig. 5-13)

1) Playback the thin video tape such as P6-120MP (NTSC), P6-90MP (PAL). Confirm that tape does not float and the major tape curl of more than 0.3 mm does not occur at the top flange of the No. 3 guide (TG3), at the top flange of the No. 6 guide (TG6) and at both the top and bottom flanges of the No. 7 guide (TG7).
2) Confirm that tape does not float and the major tape curl of more than 0.3 mm does not occur at the flanges of the respective guide when the FF button is pressed during PLAY mode to enter the CUE mode and when the REW button is pressed during PLAY mode to enter the REV mode.

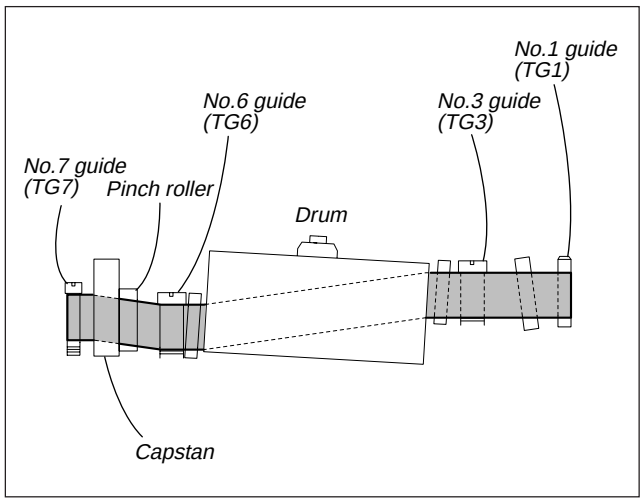
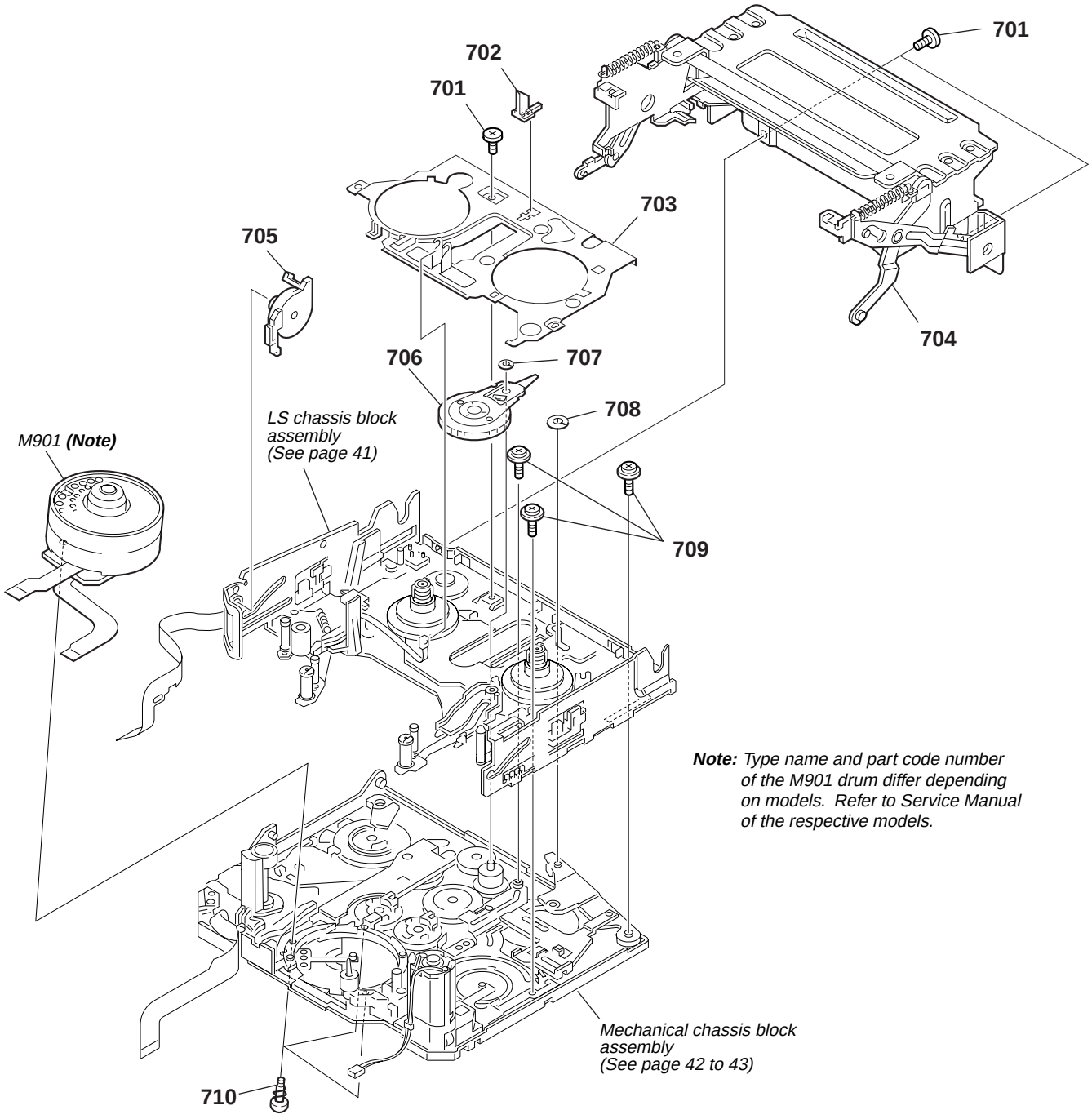


Fig. 5-13.

6. Exploded Views

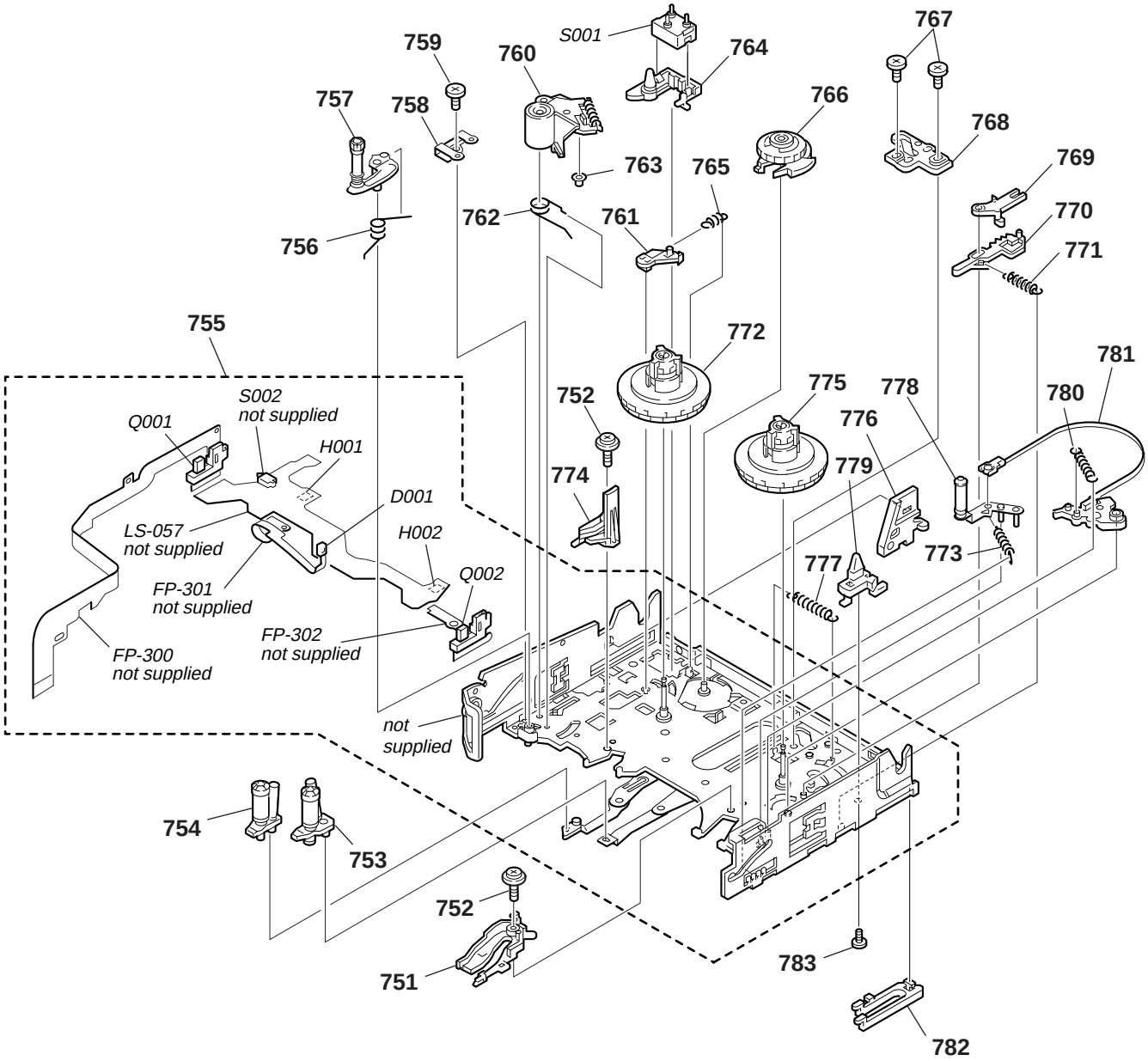
6-1. Cassette Compartment Assy, Drum Assy



Note: *Type name and part code number of the M901 drum differ depending on models. Refer to Service Manual of the respective models.*

Ref. No.	Part No.	Description	Remarks
701	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	
702	3-065-895-01	LEVER, REEL RELEASE	
703	3-065-896-01	PLATE, BLIND	
704	X-3951-298-1	CASSETTE COMPARTMENT ASSY	
705	X-3951-302-1	DAMPER ASSY	
706	X-3951-297-1	GEAR ASSY, R DRIVE	
707	3-065-840-01	CUT (0.98X3X0.13), LUMILER (W)	
708	3-065-935-01	HLC CUT (1.8X4X0.5)	
709	3-947-503-01	SCREW (M1.4)	
710	X-3951-299-1	SCREW ASSY, DRUM FITTING	
M901	— Note —	DRUM	

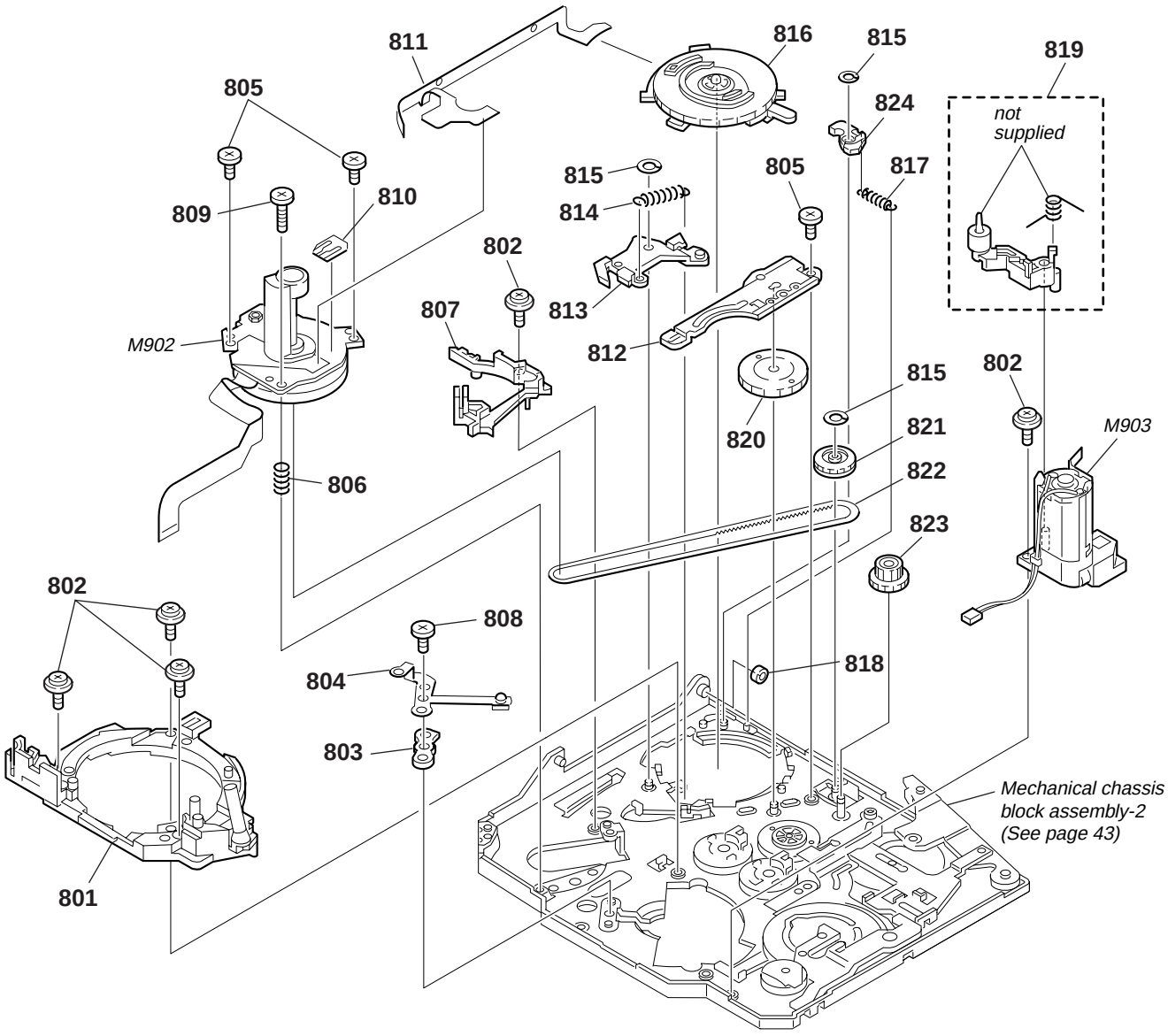
6-2. LS Chassis Block Assembly



Ref. No.	Part No.	Description	Remarks
751	3-065-822-01	RAIL (S), GUIDE	
752	3-947-503-01	SCREW (M1.4)	
753	A-7096-416-A	BASE (S) BLOCK ASSY, GUIDE	
754	A-7096-415-A	BASE (T) BLOCK ASSY, GUIDE	
755	A-7096-426-A	CHASSIS ASSY, LS	
756	3-065-802-01	SPRING, TG7 ARM	
757	A-7096-414-A	ARM BLOCK ASSY, TG7	
758	3-065-801-01	RETAINER, TG7	
759	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	
760	X-3951-303-1	ARM ASSY, PINCH	
761	3-065-823-01	ARM, T RATCHET	
762	3-065-794-01	ROAD (SPR), PINCH ARM	
763	3-065-792-01	ROLLER, P LIM ARM	
764	3-065-834-01	GUIDE (T), CASSETTE	
765	3-065-824-01	SPRING, T RATCHET	
766	A-7096-417-A	SOFT ASSY, T	
767	7-627-852-38	SCREW,PRECISION +P1.7X1.8 TYPE3	
768	3-065-832-01	PLATE, LS CAM	
769	3-065-828-01	ARM, S RATCHET	
770	3-065-829-01	PLATE, S RATCHET (RE)	

Ref. No.	Part No.	Description	Remarks
771	3-065-830-01	SPRING, S RATCHET	
772	X-3951-288-1	TABLE (T) ASSY, REEL	
773	3-065-819-01	SPRING, TG1 ARM	
774	3-065-821-01	RAIL (T), GUIDE	
775	X-3951-289-1	TABLE (S) ASSY, REEL	
776	3-065-833-01	GUIDE, LOCK	
777	3-065-831-01	PLATE (SPR), RE RETURN	
778	X-3951-304-1	ARM ASSY, TG1	
779	3-065-835-01	GUIDE (S), CASSETTE	
780	3-065-820-01	SPRING, RVS ARM	
781	X-3951-296-1	BAND (ASSY), BT	
782	3-065-836-01	COVER, LS GREASE	
783	3-067-167-01	SCREW (M1.4X2), CAMERA TAPPING	
D001	8-719-988-42	DIODE GL453 (TAPE LED)	
H001	8-719-033-37	ELEMENT, HALL HW-105C (T REEL)	
H002	8-719-033-37	ELEMENT, HALL HW-105C (S REEL)	
Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE TOP)	
Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE END)	
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (REC PROOF)	

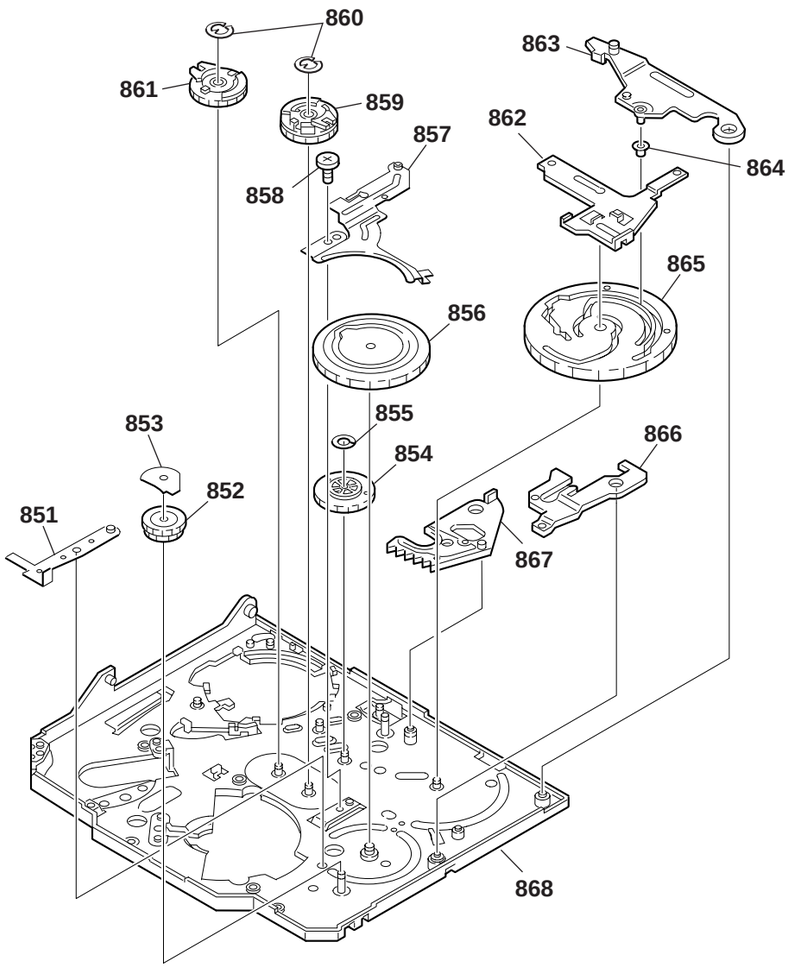
6-3. Mechanical Chassis Block Assembly-1



Ref. No.	Part No.	Description	Remarks
801	A-7096-422-A	BASE ASSY, DRUM	
802	3-947-503-01	SCREW (M1.4)	
803	3-065-928-01	SPACER, GROUND	
804	3-065-927-01	GROUND, DRUM	
805	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	
806	3-067-154-01	SPRING, CAPSTAN	
807	3-065-931-01	RAIL (T2), GUIDE	
808	X-3947-398-1	SCREW ASSY, M1.7 PW	
809	3-065-933-01	PAN (2 MAIN 1.4X4.5), CAMERA	
810	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)	
811	1-680-434-11	FP-299 FLEXIBLE BOARD	
812	3-065-877-01	PLATE (T), GUIDE LOCK	
813	X-3951-301-1	PLATE ASSY, PINCH PRESSURE	

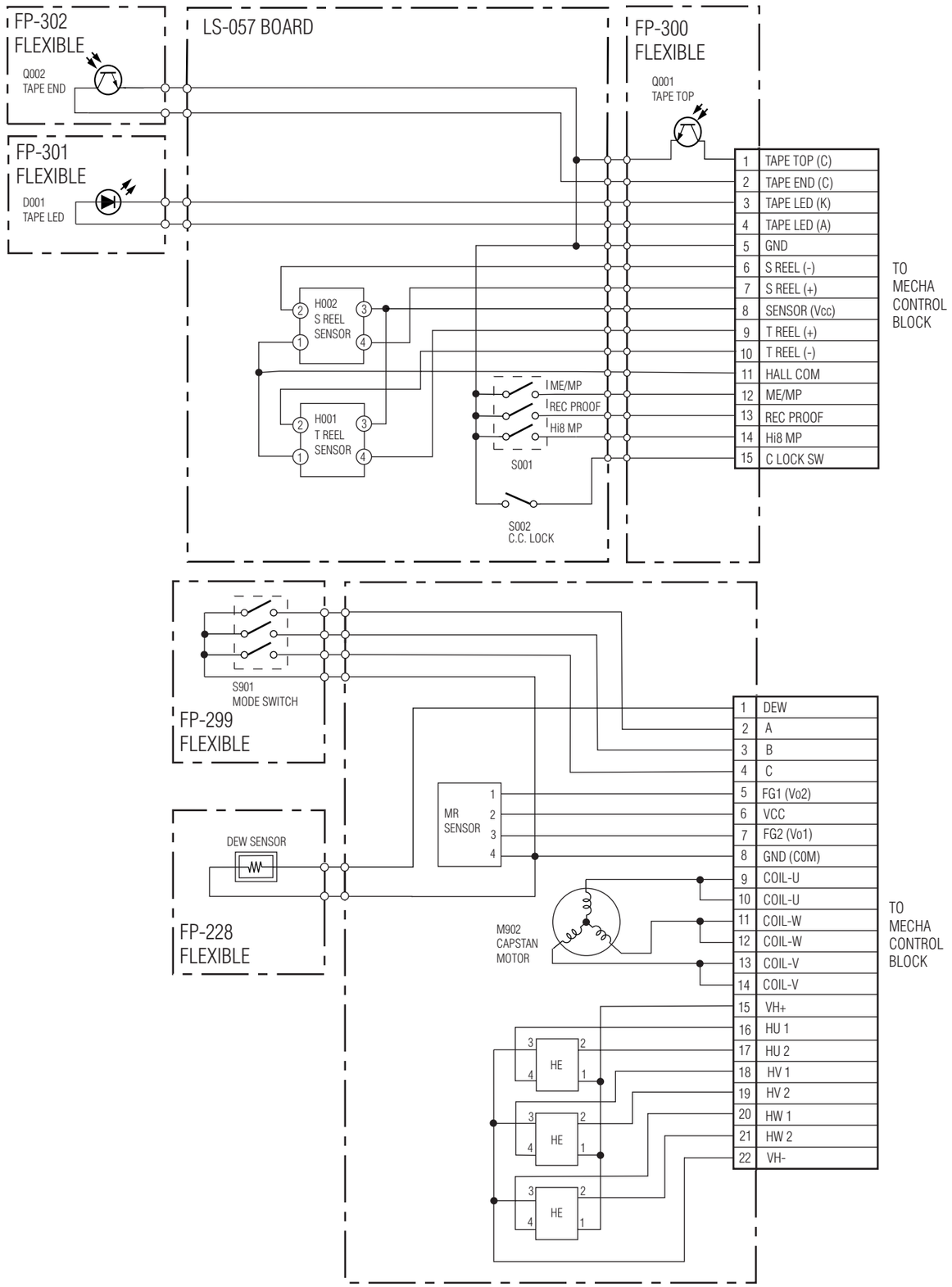
Ref. No.	Part No.	Description	Remarks
814	3-065-881-01	SPRING, P PRESSURE PLATE	
815	3-065-934-01	HLW CUT 0.98X3X0.25	
816	1-786-096-11	SWITCH, ROTARY	
817	3-065-898-01	SPRING, EJECT ARM	
818	3-065-870-01	ROLLER, LS GUIDE	
819	A-7096-421-A	ARM ASSY, HCL	
820	3-065-918-01	GEAR (2), CAM RELAY	
821	A-7096-419-A	GEAR ASSY, CHANGE	
822	3-065-902-01	BELT, TIMING	
823	3-065-905-01	GEAR, RELAY	
824	3-065-882-01	ARM, EJECT	
M902	8-835-701-01	MOTOR, DC SCE13A/C-NP (CAPSTAN)	
M903	A-7096-420-A	MOTOR ASSY, LD (LOADING)	

6-4. Mechanical Chassis Block Assembly-2

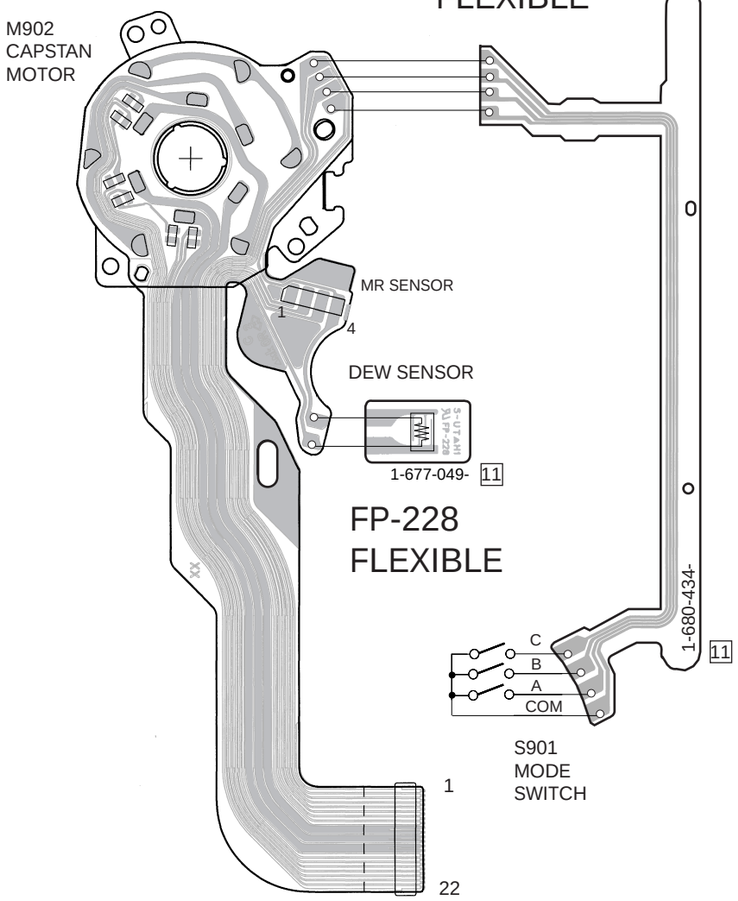


Ref. No.	Part No.	Description	Remarks
851	3-065-920-01	ARM, HC DRIVE	
852	3-065-913-01	GEAR (4), LD	
853	3-065-914-01	SHEET, COVER	
854	3-065-917-01	GEAR (1), CAM RELAY	
855	3-065-934-01	HLW CUT 0.98X3X0.25	
856	3-065-915-01	GEAR (1), CAM	
857	3-065-878-01	PLATE (S), GUIDE LOCK	
858	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA	
859	A-7096-413-A	GEAR (S) ASSY, GUIDE	
860	7-624-101-04	STOP RING 1.2 (E TYPE)	
861	A-7096-412-A	GEAR (T) ASSY, GUIDE	
862	X-3951-307-1	PLATE ASSY, M SLIDE	
863	X-3951-305-1	ARM ASSY, LS	
864	3-065-901-01	ROLLER, LS ARM	
865	3-065-916-01	GEAR (2), CAM	
866	3-065-919-01	ARM, T1 LIMITTER	
867	X-3951-308-1	ARM ASSY, GL	
868	X-3951-300-1	CHASSIS ASSY, MECHANICAL	

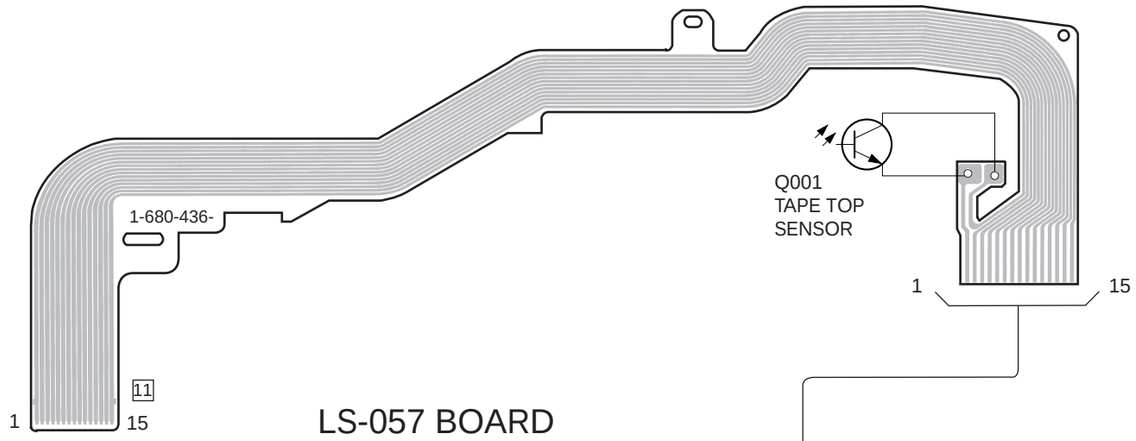
7. Printed Wiring Boards and Schematic Diagrams



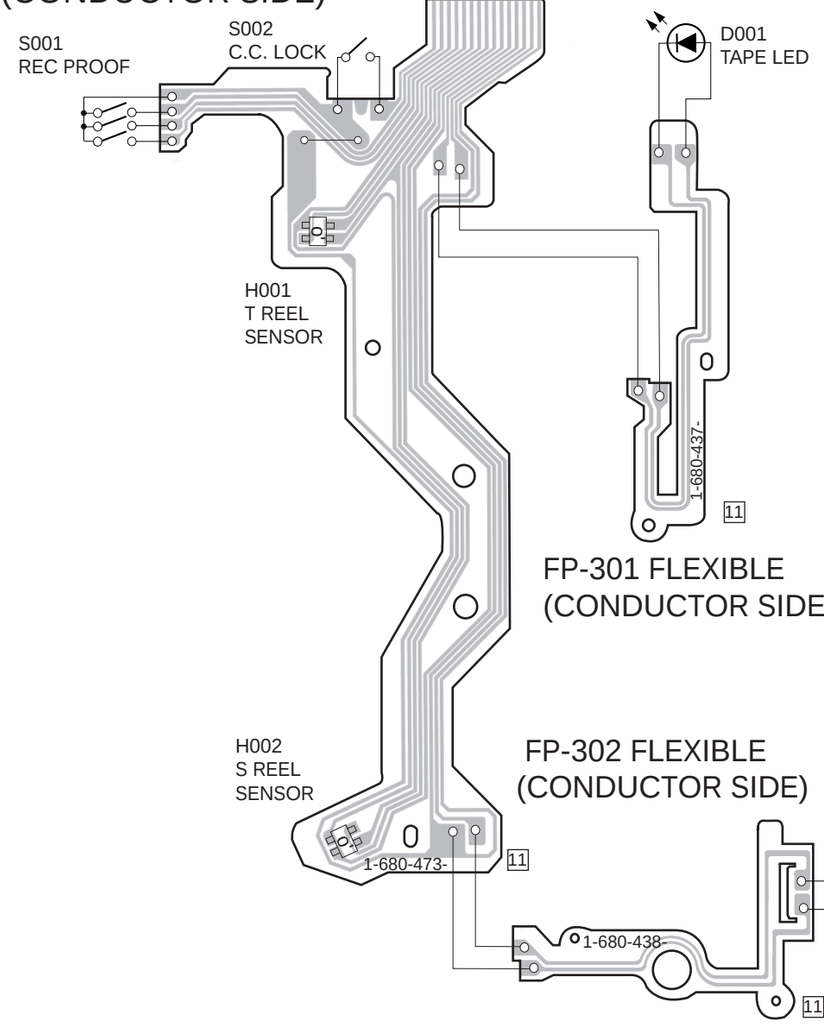
FP-299 FLEXIBLE



FP-300 FLEXIBLE (COMPONENT SIDE)



LS-057 BOARD (CONDUCTOR SIDE)



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